المملكة العربية السعودية

Kingdom Of Saudi Arabia

مركز المعلومات الوطني

National Information Center

المواصفات الفنية القياسية للأجهزة

Standard Hardware Specifications

August 2017

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TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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INSTRUCTIONS

This document contains the NIC approved specifications for site and office equipment.

In using this document, <u>you must note the following</u>:

1. Individual device **specifications are not complete** without the General requirements.
2. Specifications are **<u>Minimum of requirements only</u>**. For complete solutions bidders must ensure proposed equipment also satisfies the requirements of the complete solution.
3. As may be required by some projects, individual compiling RFPs **<u>may add some requirements</u>** such as **more RAM, faster processors, more storage**…etc.
4. Items marked '**TBS**' (To Be Specified) at the end of a spec sheet signify optional specifications which should be addressed by an RFP. Where RFP does not specify a particular choice, it is the bidder's responsibility to enquire as to which selection is needed; Otherwise bidder may be liable to supply highest cost option at the presented cost.
5. Comments or suggestions <u>to improve future versions of this document only</u> may be sent to SPECS@NIC.GOV.SA. All official communication with regard to bids or contracts must be presented to the appropriate department as per main RFP requirements.
6. <u>This document is **NOT** specific to any one project or RFP. It **may contain** specifications for **items not requested** by some projects. It is meant to be a generic document for reference use by all projects. Specific details of which items are required should be included in the main body of the project/RFP document.</u>
7. This document is updated periodically. It shall be the responsibility of the bidder to verify that they have a latest version of the document.

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General Requirements

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A. New Manufacturer Supported Products

All products must be new, not re-furbished or re-manufactured. When requested, Vendors must immediately present Original Manufacturer (or agent) certification to this effect.

Vendor must submit a formal letter, to NIC from the original manufacturer / company, that shows that the manufacturer / company will support the hardware / machines, that will be delivered as part of the vendor's contract, for the whole period of the Contract.

Where communication hardware is being proposed, the vendor must procure & deliver the equipment through "Gold Partner" agent / representative".

B. Labeling and Naming Convention:

Where installation is required at NIC Sites, all devices must be labeled in accordance with the "Naming Convention for Devices at NIC" attached to this document.

C. Power

All equipments delivered, unless otherwise specified, shall be capable of operating normally when supplied with AC power within the range of 230-400 V with a frequency of 60 Hz ± 1 %, inclusive, And should be protected from over-voltage, overheating and out-of-tolerance current surges. Voltage switching should be automatic if at all possible. And all cables must be American "NEMA 5-15P" , SASO (SAUDI STANDARD) and NEC (NATIONAL ELECTRICAL CODE) compatible.

D. Environmental Conditions

Unless otherwise determined, equipment shall meet all operational performance specifications while subjected to the following Minimum of conditions:

- Air Temperatures (Storage)   :   -5 to 50 degrees Centigrade.
    (Operating)   :   10 to 40 degrees Centigrade.
- Relative Humidity (Storage)   :   5 to 90 percent (non-condensing).
    (Operating)   :   20 to 80 percent (non-condensing).

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E. Additional requirements

1. All Hardware must be compliant with relevant C E Mark standard(s) or equivalent SASO, UL, or FCC standard(s).
2. All Hardware and software must be compatible with Windows (7,8,10…etc.) and all necessary drivers must be included.
3. **Each equipment's (server, switch, router, blade server….,etc.) should have 2 power supply active : active.**
4. **Dual power supply : Each cabinet must be have 2 power supply to feeding it from 2 different source.**
5. All necessary consumables, cables, connectors, interface cards…etc must be included.
6. Bidder must be ready upon request from NIC, to provide samples of ALL proposed equipment for testing and evaluation within FIVE days of bid presentation.
7. Bidder must provide original manuals, catalogs, and specs sheets along with the bid.
8. Bidder must make available a qualified technician for assistance during the testing of the sample equipment.
9. Bidder MUST identify and quote for any consumables necessary for proper operation of equipment.
10. Bidder MUST identify and clarify any special operating conditions and requirements for proper operation of equipment.
11. At discretion of NIC as represented by sector making their RFP documents, contractor must deliver all equipment to NIC (National Information Center) fully assembled or assembled on site.
12. If delivered to NIC, once NIC has tested\accepted equipment, contractor shall deliver and install all equipment at NIC sites under the supervision of NIC staff.

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F. General Printer Requirements:

Where applicable, depending on type of printer (paper, plastic card) all delivered printers must meet the following Minimum of specifications:

1. Prints from all windows applications using English, Arabic, or graphics.
2. Printer shall print on the following media types: Paper (copier, recycled, glossy, coated, laser), labels, envelops, transparencies.
3. Must be able to handle sheets of varying thicknesses. Bidder must specify Minimum of and Maximum total thickness allowed by the printer.
4. Printer shall not cause deformation to the printed Document.
5. Printer should come with a status indicator panel to aid problem determination.
6. Desktop size and operates under normal office temperature and environment.
7. Bidder shall supply any printer drivers required for the printing of textual data and photographic images.
8. Preference will be given to printers that detect low toner levels and NOT ALLOW low quality or faded printing.
9. Bidder must supply detailed specifications of the proposed Printers, such as special operating conditions, print quality, print resolution, printer memory, print time and statistics of mean-time-between-failures and mean-time-to-repair etc.
10. The chemical characteristics of the printing should be in accordance to ISO 7501.
11. The printer and its consumables must be fully developed products.
12. Printer consumables MUST NOT include any liquids or difficult to handle items. Toner cartridges must be easy to replace by individuals with minimal training.
13. Printer shall not produce toxic hazards, nor shall it produce a document, which presents a toxic hazard. (Toxicity defined in ISO 7810).
14. Printed image must conform to exact and narrow edge tolerances.
15. The Print Contrast Signal (PCS) must conform to ISO 1831-1980, such that PCS/min $\geq$ 0.6 at the B900 spectral band.
16. Inks and chemicals used must produce an image that remains readable and resist deterioration from exposure to light during normal use (see ISO 7810).
17. Long periods between consumable changes.
18. The Bidder shall specify the type, state the nature and cost of printing material and other consumables required for the printer.
19. The bidder must identify and justify the need for any proprietary consumables.
20. Consumable specifications must be declared, and other sources for consumables must be identified. Consumables sufficient for one year of operation must be included separately in the proposal.

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G. Warranty:

The Bidder shall provide a product warranty that includes all deliverable components. The Contractor shall guarantee all equipment, software and work activities contained in the contract against all faults during the entire warranty period.

1. The Contractor shall commit to the following warranty terms (<u>individual devices may have additional warranty details as required</u>).
2. The duration of this warranty shall be three **(3) years from final acceptance**. Unless clearly specified in the contract, OEM warrantee providing less coverage shall not be accepted.
3. OEM warrantee may have additional rights which are not relinquished by these requirements.
4. The warranty shall include the repair or replacement of the unit(s) during the warranty period by the Contractor. The replacement unit(s) shall meet the related specifications without further repair or modification.
5. The Contractor shall be liable for all costs including, but not limited to, the costs of material, labor, travel, transport and living expenses associated with the collection and return of the units covered by the warranty.
6. The date of manufacture or assembly of any equipment, parts or consumables, shall not be more than six months before delivery.
7. The Bidder shall state the location of his repair center(s) for all items not being repaired onsite.
8. NIC has the right to require a replacement if the repair is deemed to be impractical.
9. If NIC or its representative reports faults to the Contractor for correction, the Contractor shall perform corrective action with all possible speed. **If the faults do NOT affect the availability and reliability of the system as defined by MOI** they must be rectified within a maximum 10 days after the fault is initially reported). If the faults are not corrected within this period, NIC may proceed to do the work at the Contractor's risk and expense, but without prejudice to any other rights NIC may have against the Contractor with respect to the failure of the Contractor to rectify such faults. All critical faults that cause a partial or complete work stoppage must be rectified IMMEDIATELY.
10. Contractor shall make replacement components available for any failed component during the warranty period.
11. Should service be interrupted during this warranty period, due to failure of the product, the Contractor shall extend the warranty period at no cost to NIC for a period equal to the period of interruption of service.
12. The Contractor shall guarantee the availability of spare parts and technical assistance for all components (or appropriate alternatives) to ensure the product runs for at least ten (10) years, without major changes, at the completion of final acceptance. Six months advance notice is required on any discontinued part(s) with a suggestion for alternatives.
13. All hard disks should be fixed at NIC location if possible, if can't be fixed it should be replaced and NIC will keep the damaged ones.

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H. LAN Cabling Specifications:

The Structured Cabling Distribution System design will be based on the requirements and facilities drawings, which will be supplied to the Bidder. The Bidder, with permission, shall have an opportunity to walk through the premises prior to submission of the proposal if necessary.

The Horizontal Cable architecture is to be based on Category 6 (CAT 6) 4-pair copper system and runs should not exceed 90 meters. A Fiber-optic can be used as necessary to connect communications closets (for multiple floors/buildings).

Number of frames, outlets, and other LAN infrastructure components must be designed for at least 15% spare capacity per area.

I. Distribution Frames:

Contractor will design, procure and install all required Distribution Frames. The cross-connect patch field shall be mounted in the available cabinets. More cabinets may be installed as needed.

Distribution Frames will be located on each floor in an Interconnect Distribution Frame (IDF) to ensure horizontal cable runs do not exceed 90 meters. The IDF shall house the data distribution equipment, fiber terminations of the riser cable and the horizontal cables associated with the Information Outlet's (IO's) assigned to that floor. Each IDF shall be connected to a Main distribution Frame (MDF) via the intra-building fiber backbone. All patch panels should be modular.

Each floor should be designed to house one equipment room. Each equipment room should be located so that the maximum horizontal cable distance between closets, and the farthest IO, is limited to 90 meters or less as specified in ETA/TIA 568 A and the appropriate clauses of ISO DIS 11801. Due to the possible variations in designs, contractor must identify and recommend any changes in the layout of wiring closets that best utilize the recommended implementation.

J. Information Outlets (IO's):

13. Must have high performance Cat-6 socket(s) 4-pair modular RJ-45 interface(s).
14. Must be mounted in existing floor distribution boxes in 45-degree faceplates.
15. Each IO may be cabled with one, two or three (4-pair) Unshielded Twisted Pair (UTP), high speed Cat-6 cable.

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K. Installation Methodology, Documentation, Quality, & Standards:

1. EIA/TIA 568A and the ISO 11801 shall be considered as Minimum of performance specifications. Special consideration shall be given to higher performing cables in terms of Near End Cross talk.

2. The system will be based on open distribution architecture so that existing equipment and facilities, as well as future equipment for multiple vendors, can be supported by the proposed system.

3. The cabling system must support the high-speed data at any of the work areas and must support transmission of various protocols and LAN standards.

4. All system products and components shall be from a well-known manufacturer. Proposal should include manufacturer name and country where products were made.

5. Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of structured cabling products and not custom designed especially for this project.

6. All systems and components shall have been thoroughly tested and proven in actual use/function for at least 1 year prior to proposal.

7. Under no circumstances shall a contractor permit any horizontal UTP cable run to contain more than 3 cm of untwisted wire. This includes the sum of the untwisting from both the cable terminations at the patch panel and the I/O socket. Manual re-twisting of wire is not permitted. Under no circumstances shall splices of UTP Cable be permitted.

8. Upon completion of the installation, the contractor will furnish a complete set documentation including, but not limited to, Backbone (riser) & horizontal diagrams, Technical description, labeling, color coding, and as-built drawings on proper papers showing cable routes and termination points based on preliminary drawings provided.

9. All equipment will be mounted in the available Communication Cabinets in each IDF and Communication Cabinets in MDF. Sufficient space shall be provided to allow the installation of active components. All Cabinets must include front glass door, solid doors to the rear & with key set (and a master key set for all delivered Cabinets), power strip and ventilation fan set.

10. Installation of all cables, patch cords, patch panels, IO's, and Comm. Cabinets shall be in accordance with applicable sections of the current edition of the applicable local codes for signaling systems, specifically EIA/TIA 568 B.

11. All wiring that is exposed to potential electrical hazardous voltages and currents must be protected with the appropriate heat coils and sneak current protection as prescribed in the appropriate electrical code for Saudi Arabia. In addition, the contractor must comply with all regulations set forth by the US National Electrical Code (NEC) Article 250. Cables shall not be installed in the same cable tray, riser or floor trench compartment with AC power.

12. All cables not installed in conduit, floor trenches or raceways shall be properly secured and neat in appearance.

13. Cables shall not be stressed such that twisting, stretching or kinking occurs.

14. Cable shall not run through structural members or in contact with pipes, ducts or other potentially damaging items.

15. Cables shall be terminated; no cable shall contain un-terminated elements.

16. As a Minimum of , each IO shall be labeled as to its function and a unique number to identify the cable link.

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17. UTP and fiber optic cables shall have a Minimum of 6 inches of slack cable loosely coiled into the outlet boxes. Minimum of manufactures bend radius for each type of cable shall not be exceeded.
18. Patch Panels shall be modular and mounted in equipment racks with sufficient modular jacks to accommodate the installed cable plant. It is recommended that cable guides shall be provided above and below each panel.

L. Testing:

16. Contractor must submit an outline of the recommended test criteria prior to the installation of the cable system with a complete detailed acceptance test procedure covering the proposed Structured Cabling Distribution System.
17. Contractor must test for grounds, shorts, crosses and reverses, attenuation measurements for signal loss, Optical Time Domain Reflecto-meter test etc.
18. Each circuit leg and complete circuit shall be tested for insertion loss at 650 and 1300 mm using a light source similar to that used for the intended communications equipment. High-resolution optical time domain Reflecto-meter tests shall be preformed for one end of each fiber. Scale of the OTDR trace shall be such that the entire circuit appears over a Minimum of 80 percent of the X-axis.
19. When measurement is made on Category 5e links by suitable Tester, the following measurements must be performed:
20. Wire map, PSNEXT, Length, FEXT, Delay, ELFEXT, Delay Skew, PSELFEXT, Attenuation, Return loss, NEXT.
21. Contractor must give printed reports showing that ALL nodes have passed all required tests. Then a randomly selected 20% of nodes shall be tested with NIC representatives to verify the above reports.

M. Cabling Warranty:

For the cabling, the contractor will offer a **Minimum of a 15 year product warranty for all passive components and a 15 year warranty for systems assurance**. Contractor will provide a clear definition of the benefits of such a warranty. All associated paperwork, including a copy of the registration document and certificates, must be provided.

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N. Label Scheme:

A) UTP Part: -

The UTP part is divided into two parts: -

Part 1) Cabinet Area (wiring Closet):-

The cabinet label for Building should be written as: -

(Building Name - Floor# - Area name)

Building Name: -

To follow the protocol below: -

Building Name	Code of Building	Note
Admin Building	A	
Research Building	R	
Training Building	T	
Computer Building	C	

Floor# : -

To follow the protocol below:-

Floor Name	Code of floor (Floor #)	Note
Ground	0	
First	1	
Second	2	
Third	3	
Fourth	4	
Fifth	5	
Sixth	6	
Basement	99	

Area Name: -

Use Capital Letters (A, B, C.) for are name (see example below).

No.	Status	Cabinets label
1	One cabinet in Ground floor, Computer Building	C0A
2	One cabinet in First floor, Admin Building	A1A
3	Two cabinet in Second floor, Admin Building	A2A,A2B

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Part 2) Node Area (Work Area): -
The labeling scheme for Node Area is: -

(Cabinet Label - Patch Panel Number – Port Number)

Cabinet Label: -
As in UTP (Part 1) above (Building Name - Floor # - Area Name).

Patch Panel Number: -
Each PATCHMAX Panel in cabinet to be numbered as follows:-

Patch Panel	Patch Panel Code	Place
PATCHMAX 1	I	Bottom of Cabinet
PATCHMAX 2	II	Over PATCHMAX 1
PATCHMAX 3	III	Over PATCHMAX 2
PATCHMAX 4	IV	Over PATCHMAX 3
PATCHMAX 5	V	Over PATCHMAX 4
PATCHMAX 6	VI	Over PATCHMAX 5
PATCHMAX 7	VII	Over PATCHMAX 6

Port Number: -
It is the port number in the PATCHMAX Panel. The ranges will be 1 to 24.

Notes for UTP Labels: -

Yellow numbered labels should be used in terminated cables in PATCHMAX Panel.

Black Labels should be used for numbering PATCHMAX panel. Labels should be placed in the bottom right corner of the PATCHMAX Panel and nodes.

Transparent tape should be used to fix black labels onto the cabinets and or nodes.

B) Fiber Part: -
The outdoor fiber and the indoor fiber cables label should be written as: -

(Source Cabinet Name Label – Destination Cabinet Name Label)

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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Source Cabinet Name Label: -
As in UTP (Part 1) above (Building Name - Floor # - Area Name).

Destination Cabinet Name Label: -
As in UTP (Part 1) above (Building Name - Floor # - Area Name).

Note for Fiber Cables: -

Black Labels should be used for numbering the PATCHMAX Opti-SPEED panel. Labels should be placed in the bottom of the Distribution Module in Panel.

This label scheme certified from Lucent Technologies.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

النسخة: 8_2017   ص ١٧ من ١٢٨   المواصفات الفنية القياسية للأجهزة

O. LAN Cabling Specifications:

The Structured Cabling Distribution System design will be based on the requirements and facilities drawings, which will be supplied to the Bidder. The Bidder, with permission, shall have an opportunity to walk through the premises prior to submission of the proposal if necessary.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ١٨ من ١٢٨   النسخة: 8_2017

PCs

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

المواصفات الفنية القياسية للأجهزة   ص ١٩ من ١٢٨   النسخة: 8_2017

1. **All In One:**

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Intel® 7th generation Intel® Core™ i7-7700 (3.6 GHz, up to 4.2 GHz ,8MB cache, 4 cores) or above. Optional AMD processors with equivalent performance & features are acceptable.
3. Intel Q270 Chipset or Higher.
4. **TBS:** (1x 8GB) DDR4-2400 SDRAM & must be capable to upgrade to 32GB.
5. Integrated Ethernet LAN 10/100/1000, Support WiFi, Bluetooth.
6. **TBS:** Minimum 500 GB 7200 rpm SATA.
7. **TBS:** Minimum Integrated Intel® HD Graphics 630; supports optional discrete graphics solutions from AMD and nVidia .
8. Support Trusted Platform Module (TPM) 1.2.
9. **TBS:**Integrated 2.0MP FHD webcam.
10. 8x Slim line DVD+/-RW.
11. English/Arabic (QWERTY) Wireless Keyboard and mouse of same brand as computer.
12. **TBS:** At least USB 3.0 (2side/4rear) and USB 2.0, Display Port or HDMI, 1RJ-45 , Mic & Audio out, Internal Speaker.
13. **At least** Internal 180W , 90% Efficient Power supply.
14. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
15. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC)**.
16. **TBS:** 23" Wide Viewing Angle Touch screen, Full HD 1920x 1080 resolution with anti-glare coating with Height Adjustable Stand.
17. Original Diagnostics and Drivers DVD included with each Box.
18. **Three years** warranty on Site service.
19. **Three years** Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٢٠ من ١٢٨   النسخة: 8_2017

2. Mid-Range desktop Computer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Intel® 7th generation of Intel® Core™ i5-7500 (3.4 GHz, up to 3.8 GHz with Intel Turbo Boost, 6 MB cache, 4 cores) or above. Optional: AMD processors with equivalent performance & features are acceptable.
3. Intel® H270 Chipset or Higher.
4. **TBS:** Minimum of 4 GB DDR4-2400 SDRAM (1 x 4 GB) up to 32GB.
5. Recommended Small Form Factor tool-less case. (Optional :Mini Tower OR Mini Pc).
6. Support Anti Intrusion chassis switch and security lock slot available.
7. Intel Integrated Ethernet LAN 10/100/1000.
8. Support SSD Hard drive.
9. **TBS:** Minimum of 500 GB SATA III (7.200 RPM) (Optional Fully Encrypted Hard Disk Drive).
10. **TBS:** Minimum Integrated Intel® HD Graphics 630; Optional supports optional discrete graphics solutions from AMD and NVidia.
11. **TBS: At least** One PCI and One PCIe x16 ports.
12. Support Trusted Platform Module (TPM) 1.2.
13. **TBS:** MULTI DVD writer Minimum of (16X DVD/±RW).
14. Optic Mouse and Mouse pad.
15. Keyboard, Mouse, and BIOS of same brand as PC.
16. **TBS: At least** External USB 3.0 ports (2 front, 2 rear) and 6 External USB 2.0 ports (2 front, 4 rear) 1 RJ-45; 1 Serial; 1 VGA; 2 DisplayPort & 1 Parellel port , Mic and Audio out, Internal Speaker.
17. **At least** 85% Efficient PSU.
18. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
19. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC).**
20. **TBS:** Minimum 20" LED monitor VGA,DVI-D (1600x900) (same brand as PC) .
21. Original Diagnostics and Drivers DVD included with each Box.
22. **Three years** warranty on Site service.
23. **Three years** Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

المواصفات الفنية القياسية للأجهزة   ص ٢١ من ١٢٨   النسخة: 8_2017

3. High End Desktop Computer Specifications:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Intel® 7th generation Intel® Core™ i7-7700 (3.6 GHz, up to 4.2 GHz with Intel Turbo Boost, 8 MB cache, 4 cores) or above . Optional AMD processors with equivalent performance & features are acceptable.
3. Intel® Q270 Chipset or Higher.
4. **TBS:** Minimum of 8GB DDR4-2400 SDRAM (1x8GB) up to 64GB.
5. Recommended Small Form Factor tool-less case. (Optional TBS: Mini Tower).
6. Support Anti Intrusion chassis switch and security lock slot available.
7. Integrated Ethernet LAN 10/100/1000.
8. **TBS:** Minimum of 500 GB SATA III (7.200 RPM) (Optional Fully Encrypted Hard Disk Drive).
9. **TBS:** Minimum of Integrated Intel® HD Graphics 630; supports optional discrete graphics solutions from AMD and NVidia.
10. **TBS: At least** One PCI and One PCIe x16 ports.
11. Support Trusted Platform Module (TPM) 1.2.
12. **TBS:** MULTI DVD writer Minimum of (16X DVD/±RW).
13. Optic Mouse and Mouse pad.
14. Keyboard, Mouse, and BIOS of same brand as PC.
15. **TBS: At least** External USB 3.0 ports (2 front, 2 rear) and 6 External USB 2.0 ports (2 front, 4 rear) 1 RJ-45; 1 Serial; 1 VGA; 2 DisplayPort & 1 Parellel port, Mic and Audio out, Internal Speaker.
16. **At least** power supply 180W, 85% Efficient PSU.
17. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
18. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC)**.
19. **TBS:** Minimum 20" LED monitor VGA,DVI-D (1600x900) (same brand as PC) .
20. Original Diagnostics and Drivers DVD included with each Box.
21. **Three years** warranty on Site service.
22. **Three years** Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٢٢ من ١٢٨   النسخة: 8_2017

4. Workstation:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Of Intel® Xeon® E5- 1620 v4 (3.5 GHz, 10 MB cache, 4 cores) or above with vPro™ Technology. Optional AMD processors with equivalent performance & features are acceptable.
3. **TBS:** Minimum of 16GB DDR4-2400 MHz.
4. Supports PCI Express Generation 3.
5. **TBS: At least** 2 PCIe x16 Slots,1 PCIe x1Slot ,1 PCI Slot.
6. Integrated Gigabit Ethernet LAN 10/100/1000 .
7. Supports boot from USB.
8. Support Anti Intrusion chassis switch and secuirty lock slot available.
9. Mini tower Chassis.
10. **TBS:** Minimum of 1TB SATA (7,200rpm) Hard Drive and 1 PCI SSD.
11. Integrated Raid card supports RAID 0/1/5/10.
12. Graphics NVIDIA® Quadro® M4000 (4 GB).
13. Support Trusted Platform Module (TPM) 1.2.
14. **TBS:** MULTI DVD writer Minimum of (16X DVD/±RW)
15. Optic Mouse and Mouse pad.
16. Keyboard, Mouse, and BIOS of same brand as PC.
17. **TBS: At least** 4 External USB 3.0, 2 External USB 2.0, Internal USB 2.0, 1 RJ-45; 1 Serial; 1 VGA; 2 DisplayPort & 1 Parellel port, Mic and Audio out, Internal Speaker.
18. 90% Efficient Power Supply.
19. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
20. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC).**
21. Original Diagnostics and Drivers DVD included with each Box.
22. **TBS:** Minimum of 23" LED monitor, VGA, DVI-D, DP (1920x1080) (same brand as PC.
23. **Three years** warranty on Site service.
24. **Three years** Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٢٣ من ١٢٨   النسخة: 8_2017

5. Notebook:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Intel® 7th generation Intel® Core™ i5-7200U (2.5 GHz, up to 3.1 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores) or above.   Optional AMD processors with equivalent performance & features are acceptable.
3. **TBS:** Minimum of 4 GB DDR4-2133 SDRAM (1 x 4 GB).
4. Integrated Gigabit Ethernet 10/100/1000, Bluetooth® 4.0, Wireless card 802.11ac/a/b/g/n 2x2.
5. **TBS:** Optional: integrated LTE/HSPA+ Mobile Broadband .
6. **TBS:** Minimum of 500 GB SATA III (7.200 RPM) (Optional: Fully Encrypted Hard Disk Drive).
7. **TBS:** Minimum of MULTI DVD writer Minimum of (8X DVD/±RW).
8. **TBS:** Minimum of 14" HD (1366x768) Wide View Anti-Glare WLED-backlit. (optional: Touch screen display).
9. **TBS:** Minimum of Integrated Intel® HD Graphics 620; Optional Support discrete graphics solutions from AMD or NVidia.
10. Support Trusted Platform Module (TPM) 1.2.
11. **TBS:** Minimum of MULTI DVD writer Minimum of (8X DVD/±RW).
12. 87/88 key, full size, spill resistant Arabic/English keyboard with arrow keys.
13. Touch pad pointer on palm rest.
14. **TBS:** At least 3 USB Ports, 1 Docking connector,1VGA, HDMI or DisplayPort , RJ-45, (Optional: memory card reader).
15. High quality speakers, Stereo headphone/Microphone.
16. Integrated HD video webcam.
17. **TBS:** 9 -cell Lithium Ion battery with Express Charge.
18. Universal (230/400 auto switching) AC Power Adapter.
19. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
20. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC)**.
21. Must include Naylon carrying case same brand as manufacturer.
22. Original Diagnostics and Drivers DVD included with each Box.
23. Three years warranty on Site service.
24. Three years Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٢٤ من ١٢٨   النسخة: 8_2017

6. Ultrabook:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. **TBS:** Minimum Intel® 7th generation Intel® Core™ i5-7200U (2.5 GHz, up to 3.1 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores) or above.   Optional AMD processors with equivalent performance & features are acceptable.
3. Intel® Premium Chipset with vPro Technology.
4. **TBS:** Minimum of 4 GB DDR4-2133 SDRAM (1 x 4 GB).
5. Integrated Gigabit Ethernet 10/100/1000, Bluetooth® 4.0, Wireless card 802.11ac/a/b/g/n 2x2.
6. **TBS:** Optional: integrated LTE/HSPA+ Mobile Broadband .
7. **TBS:** Minimum of 500 GB SATA III (7.200 RPM) (Optional: Fully Encrypted Hard Disk Drive).**OR** Minimum of Intel 240GB Solid State Drive (Optional: Support Fully Encrypted Hard Disk Drive).
8. **TBS:** Minimum of 14" HD (1366x768) Wide View Anti-Glare WLED-backlit. (optional: Touch screen display).
9. **TBS:** Minimum of Integrated Intel® HD Graphics 620; Optional Support discrete graphics solutions from AMD or NVidia.
10. Support Trusted Platform Module (TPM) 1.2.
11. 87/88 key, full size, spill resistant Arabic/English keyboard with arrow keys.
12. Touch pad pointer on palm rest.
13. **TBS:** At least 3 USB Ports, 1 Docking connector,1VGA, HDMI or DisplayPort , RJ-45, (Optional: memory card reader).
14. High quality speakers, Stereo headphone/Microphone.
15. Integrated HD video webcam.
16. **TBS:** 9 -cell Lithium Ion battery with Express Charge.
17. Universal (230/400 auto switching) AC Power Adapter.
18. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
19. **TBS:** Antivirus program preloaded. **(Drop if enterprise license exists such as at NIC)**.
20. Must include Naylon carrying case same brand as manufacturer.
21. Original Diagnostics and Drivers DVD included with each Box.
22. Three years warranty on Site service.
23. Three years Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٢٥ من ١٢٨   النسخة: 2017_8

7. RUGGEDIZED NOTEBOOKS:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **TBS:** Minimum of Intel® 6th generation, Intel® Core™ m7-6Y75 Processor (4M Cache, up to 3.10 GHz) or above. Optional AMD processors with equivalent performance & features are acceptable.
2. Mobile Intel® Premium Express Chipset with vPro Technology.
3. **TBS:** Minimum of 8GB DDR3L RAM at 1600MHz or higher, Expandable to 16 GB.
4. **TBS :**12.1" or Bigger WXGA (1280x800) Outdoor Viewable Touch Screen LED **OR** 14" HD (1366x768) Anti-Glare LED OR 14" HD+ (1600x900) Anti-Glare LED .
5. Spill Resistant Backlit keyboard for illumination in dark settings.
6. High durability textured paint.
7. Removable port cover for the rear, bottom, and side ports to help protect against dust ingress.
8. Steel-reinforced Cable Lock Slot, Media Module and Hard Drive locks.
9. **TBS:** Minimum of Intel 240GB Solid State Drive (Optional: Support Fully Encrypted Hard Disk Drive).
10. **TBS:** Integrated Intel® HD Graphics 515.
11. MULTI DVD WRITER MINIMUM OF (16X DVD+/-RW).
12. Integrated Ethernet LAN 10/100/1000.
13. 1Wireless card 802.11 a/b/g/n with Bluetooth 4.0 ,EVDO,GSM,EDGE,UMTS.
14. Wi-Fi Catcher Network Locator, ambient light sensor.
15. **TBS:** Integrated Mobile Broadband 3G/4G Tri-band HSDPA & GPS & GPRS adapter with at least 2 integrated broadband antennas.
16. **TBS:** External& Internal Antenna for GPS.
17. 87/88 keys, full size, spill resistant Arabic/English keyboard with arrow keys(Automatic Back Light to auto illuminate in dark environments).
18. Touch pad pointer on palm rest.
19. At Least 85 WHr 9 Cell "Smart" Lithium Ion battery featuring Express Charge. Bidder must supply battery life information.
20. Additional 9 Cell Battery Slice.
21. charging through the battery of the vehicle and also the possible link to solar cells.
22. High Definition Audio codec speaker, 2.0W with integrated omni-directional microphone and two speakers.
23. One Type I/II PCMCIA or ExpressCard/54, 5-in-1 card reader.
24. Ports: IEEE-1394, docking connector, 4 USB 3.0 (at least one eSATA port, One USB PowerShare), and headphone/speaker out.
25. Display TV output port supporting HDMI & DVI connections via adapters.
26. Integrated Smart Card reader.
27. Trusted Platform Module (TPM).
28. weight of no more than 5 kg.
29. **TBS:** A genuine pre-loaded Microsoft® Windows 10 Professional 64 Bit OEM License from factory. Will be verified by Microsoft Saudi before Hardware Acceptance.**(Drop if enterprise license exists such as at NIC).**
30. **TBS:** Antivirus program preloaded **(Drop if enterprise license exists such as at NIC)**.
31. Original Diagnostics and Drivers DVD included with each Box.
32. Must include Naylon carrying case same brand as manufacturer.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18) على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة ص ٢٦ من ١٢٨ النسخة: 8_2017

33. Universal (230/400 auto switching) AC Power Adapter.
34. **Three years** warranty on Site service.
35. **Three years** Next Business Day on-site warranty upgrade including HW, SW and 24x7 access to manufacturer support center (3-3-3).
36. Environmental Specifications – must meet or exceed the standard military specs for ruggedness (MIL-STD-810F) and meet the Ingress Protection (IP) rating of IP-54, for dust and water penetration.
    i. Die-cast metal for all structural components.
    ii. Comply to 510.4 procedure for dust.
    iii. Comply to 507.4 procedure) for humidity.
    iv. Comply to 514 procedure I; category 20 and 24 for non-op and op vibration.
    v. Comply to (procedure I & II) for altitude.

8. Mobile Device for (Basher System):

Must meet NIC General HW requirements plus the following Minimum of requirements:
1. **Must be a brand name product.**
2. Back Camera: LED Flash 5MP at least.
3. Touch Screen: 5 inch at least.
4. Ram: ٢G at least. CPU dual core 1 GHz
5. Memory: 16G at least.
6. SIM card only, Wi-Fi must be disabled.
7. GPS: A-GPS support and GLONASS.
8. Support of secured storage area.
9. Support for fingerprint login.
10. Application Locks.
11. Maintained by Application Store and Messaging System
12. Support Android OS.
13. Device Metadata must be numeric.
14. Support MDM Solution.
15. 3 Years full warranty.

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18) على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة ص ٢٧ من ١٢٨ النسخة: 8_2017

9. Keyboards:

Must meet NIC General HW requirements plus the following Minimum of requirements:

Must be same brand as PC (required for standard keyboard only).

1. Must be brand name.
2. Arabic / English characters.
3. Must conform to standard Arabic character positioning. E.g. Such that the Arabic character 'ذ ' must be immediately to the left of the QUERTY keyboard number '1'.
4. Types of keyboard:
   a. **Standard keyboard with no additions.**
   b. **Wireless Desktop Keyboard & Mouse:**
      - 2.4GHz Interface.
      - USB wireless receiver.
      - Keyboard And Mouse must be comfortable.
      - USB wireless receiver.
      - Compatible with Windows 8 ,7 And XP .
   c. **Keyboard with integrated Smart Card Reader :**
      - High speed USB interface connected and powered.
      - Fully Compatible with all ISO 7816 compliant smart cards.
      - Drop down NOT drag on card contacts.
   d. **Keyboard with integrated optical fingerprint scanner. Fingerprint scanner must meet the following specifications:**
      - 500 dpi Resolution.
      - Meet FBI/ IAFIS Image Quality Specification EFTS Appendix F (CJIS-RS0010).
      - Compliant with IAFIS and NIST image standard.
      - Dynamic Range True 8 bits/pixel = 256 gray levels.
      - Scan Area 1" x 1".
   e. **Keyboard with both fingerprint scanner and Smart Card Reader.**
   f. **Keyboard with OCR, smart card and e-passport reader and Arabic Engraved lettering with the following specs:**
      - High speed USB base technology.
      - ICAO conform RFID reading for biometric passports, and conventional travel documents.
      - Fully integrated ICAO RFID Reader.
      - Five different data entry devices: e-Passport Reader, Keyboard, OCR, BCR and MSR.
      - High speed USB.
      - No additional standalone hardware or power supply is required.
   g. **Keyboard with OCR reader and Arabic engraved lettering with the following specs:**
      - USB technology, smart card (RFID).
      - Minimum desk space.
      - Bi-directional swipe.
      - High speed USB.
      - Four different data entry devices: Keyboard,OCR,BCR and MSR.
      - "future Proof" modular design.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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- No additional standalone hardware or power supply is required.

5. **3 years Warranty.**

10. Numeric Keypad:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. USB interface connected and powered.
2. Contains at least 10 number keys and Enter key.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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Smart Card Reader

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ **Vendors must comply with instructions (page 6 to 18)**

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11. Contact Smart Card Reader:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product.
2. Product type is Smart Card Reader and Media Supported Smart Card.
3. Supports ISO 7816 Class A, B and C cards (5 V, 3 V, 1.8 V).
4. Supports up to TA1=17 (826 Kbps with a 4.8Mhz reader clock) for CT30.
5. Supports up to TA1=97 (500 Kbps with a 4Mhz reader clock) for CT510 and CT700.
6. Supports up to TA1=96 (340 Kbps with a 4Mhz reader clock) for other readers.
7. Reads from and writes to all ISO 7816-1,2,3,4 microprocessor cards, T=0 and T=1 protocols.
8. Supports memory cards using "Synchronous Card API".
9. Short circuit detection.
10. 8 friction contacts - ISO location.
11. 100,000 insertion cycles.
12. EMV Level 1 mechanically compliant.
13. Embossed smart cards supported.
14. Supported Standards:
    i.   ISO/IEC 7816-1,2,3,4: IC Cards with contacts.
    ii. EMV Terminal Level 1 version 4.1.
    iii. Mondex ChipSafe Plus Purse 2 (CT30).
    iv. Microsoft Windows Hardware Quality - Labs (WHQL), Windows Logo Program WLP 2.0.
    v.   USB 2.0 Full speed certified (USB readers listed on usb.org website).
    vi. CCID - Chip Card Interface Device 1.1 (USB & ExpressCard readers).
15. Height is 3", Width is 2" , Depth is 2.2".
16. Cable Connectivity Technology, Interface must be USB.
17. Certifications & Standards:
    i.   VDE.
    ii. GS.
    iii. cRUus.
    iv. CE.
    v.   FCC.
    vi. WHQL.
    vii. EMV 2000 Level 1.
18. 100 mA Input current.
19. Must be support Microsoft windows (8, 7, XP,...etc) and Linux.
20. **Three years warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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12. Contactless Smart Card Reader:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product.
2. Smart Card Interface:
    i. Operating frequency : 15.56 MHz.
    ii. Baud rate : 106 Kbps to 848 Kbps.
    iii. Compliant with Mifare and ISO 14443 type A and B, T=CL protocol.
    iv. Reading distance : 0 cm to 10 cm depending on antenna size.
    v. Up to 4 SAM contact interfaces, ISO 7816, T=0 and T=1 protocols, 115 Kbps.
3. Main functions:
    i. High level command set.
    ii. Mifare Application Directory (MAD).
    iii. Card insertion / removal detection.
    iv. E-purse command set.
    v. Firmware download.
    vi. Compliant with ICAO epassports and FIPS 201 / - PIV governmental cards.
    vii. Compiant with PayPass level 1 payment specifications.
4. **3 years Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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13. Dual Capability Smart Card Reader:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product.
2. Up-to-date architecture.
3. Ability to drive any type of ISO14443-A&B T=CL contactless smart cards.
4. Ability to drive any type of MIFARE®contactless smart cards.
5. Ability to drive any type of ISO7816 contact smart card or SIM/SAM card.
6. Support for smart card with a higher baud rate (contact and contactless).
7. Easily upgradeable download of the latest features.
8. Standard USB Full speed interface, bus powered (no external power supply required).
9. Unique USB serial number which enables that the device can be plugged into any USB slot on a computer without having to re-install the driver.
10. Standard CCID interface for both smart card slot (contact and contactless).
11. Standard HID interface for device administration.
12. No need of a proprietary USB driver. The standard CCID and HID drivers of the computer can be used.
13. PC/SC V2.0 compliant.
14. Embedded protection against dual interface smart card damage and switch feature to select the active interface (contact or contactless).
15. 3 years Warranty.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

Servers & Load Balancer

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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14. **Stand Alone Server:**

Must meet NIC General HW requirements plus the following minimum requirements:

1. Must be well known brand name Server.
2. Minimum of two Intel® Xeon® Processor "Platinum 5118" (16M Cache, 2.3 GHz) Or above.
3. Supports PCI Express Generation 3.
4. Intel® C621 Chipset or higher:
   a. AES New Instructions.
   b. Intel® Hyper-Threading Technology.
   c. Intel® Virtualization Technology (VT-x) and for Directed I/O (VT-d).
   d. Intel® Trusted Execution Technology (TXT).
5. **TBS:** Minimum of 24 GB of (6 x 4GB) (DDR4-2666 Mhz) Registered DIMMs, expandable to 1.5 TB.
6. **TBS:** Two SAN storage 16Gb Single Port PCI-e Fiber Channel Host Bus Adapter (If required SAN connectivity). Additional HBA is required to be dedicated for DB backup for DB servers.
7. **TBS:** Minimum of 2 x 300GB 12G 15K SFF Hot pluggable disk drives , expandable to 8 SFF drives with optional drive cage to host another 8 SFF drives for a total of 16 drives.
8. RAID controller with 1GB flash packed write cache to support RAID 0, RAID 1, RAID 0+1, RAID 5, RAID 5+0.
9. TWO Dual Port Multifunction Gigabit Server Adapters (four ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI.
10. One dedicated 1Gb/s port for servers management.
11. Integrated Management card with full management features to support :
    a. Remote servers control.
    b. Remote serves deployment.
    c. Remote server power and performance monitor.
    d. Support unlimited servers migration from X to X (X is physical or Virtual).
12. **TBS:** Combo Drive DVD reader CD writer minimum.
13. Support common power supply features.
14. Two Redundant Hot pluggable power supplies that can support 500, 800and 1600 watts depending on the configuration of the servers.
15. **Should have 2 power supply active : active.**
16. Redundant fans as standard.
17. Installation and startup services to include HW, OS, network configuration and SAN connectivity.
18. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
19. All servers HW components must be integrated at the manufacturer factory.
20. **3 years 24x7 support on labor and parts, this warranty should be from the main. vendor directly (i.e. HP, Dell, IBM) to cover the following:**
    a. **HW and servers management SW.**
    b. **4 hours response time.**
    c. **Tool free call center # manned 24x7.**
21. **Rack Mountable with 2U form factor.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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15. Blade Management and Backup Server:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be well known brand name.
2. Minimum of two Intel® Xeon® Processor "Platinum 5118" (16M Cache, 2.3 GHz) Or above.
3. Supports PCI Express Generation 3.
4. Intel® C621 Chipset or higher:
   a. AES New Instructions.
   b. Intel® Hyper-Threading Technology.
   c. Intel® Virtualization Technology (VT-x) and for Directed I/O (VT-d).
   d. Intel® Trusted Execution Technology (TXT).
5. **TBS:** Minimum of 24 GB of (6 x 4GB) (DDR4-2666 Mhz) Registered DIMMs, expandable to 1.5 TB.
6. **TBS:** Two SAN storage 16Gb Single Port PCI-e Fiber Channel Host Bus Adapter (If required SAN connectivity). Additional HBA is required to be dedicated for DB backup for DB servers.
7. **TBS:** Minimum of 2 x 300GB 12G 15K SFF Hot pluggable disk drives , expandable to 8 SFF drives with optional drive cage to host another 8 SFF drives for a total of 16 drives.
8. Redundant power supplies and fans.
9. **Should have 2 power supply active : active.**
10. RAID controls with RIAD 0,1 and 5 support.
11. Four 1Gb/s NIC ports.
12. One Dual channel 8GB/s SAN ports.
13. One dedicated 1Gb/s port for servers management.
14. Integrated Management card with full management features to support :
    a. Remote servers control.
    b. Remote serves deployment.
    c. Remote server power and performance monitor.
    d. Support unlimited servers migration from X to X (X is physical or Virtual).
15. Installation and startup services to include HW, OS and network configuration.
16. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
17. All servers HW components must be integrated at the manufacturer factory.
18. 3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. Dell, HP, IBM) to cover the following:
    a. HW and servers management SW.
    b. 4 hours response time.
    c. Tool free call center # manned 24x7.
19. Rack Mountable with 2U form factor.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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16. Small Range Blade Server (2WAY):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be well known brand name Blade Sever.
2. Minimum of two Intel® Xeon® Processor "Platinum 5118" (16M Cache, 2.3 GHz) Or above.
3. Supports PCI Express Generation 3.
4. Intel® C621 Chipset or higher:
   a. AES New Instructions.
   b. Intel® Hyper-Threading Technology.
   c. Intel® Virtualization Technology (VT-x) and for Directed I/O (VT-d).
   d. Intel® Trusted Execution Technology (TXT).
5. **TBS:** Minimum of 24 GB of (6 x 4GB) (DDR4-2666 Mhz) Registered DIMMs, expandable to 1.5 TB.
6. **TBS:** Two SAN storage 16Gb Single Port PCI-e Fiber Channel Host Bus Adapter (If required SAN connectivity). Additional HBA is required to be dedicated for DB backup for DB servers.
7. **TBS:** Minimum of 2 x 300GB 12G 15K SFF Hot pluggable disk drives RAID controller with 1GB flash packed write cache to support RAID 0,RAID 1,RAID 0+1.
8. One dedicated 1Gb/s port for servers management.
9. Integrated Management card with full management features to support :
   a. Remote servers control.
   b. Remote serves deployment.
   c. Remote server power and performance monitor.
   d. Support unlimited servers migration from X to X (X is physical or Virtual).
10. Installation and startup services to include HW, OS and network configuration.
11. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
12. **Should have 2 power supply active : active.**
13. **3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. Dell, HP, IBM) to cover the following:**
   a. **HW and servers management SW.**
   b. **4 hours response time.**
   c. **Tool free call center # manned 24x7.**
14. All servers HW components must be integrated at the manufacturer factory.
15. **Form factor: Half height or single width.**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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17. Mid Range Blade Server (2WAY):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Minimum of two Intel® Xeon® Processor "Platinum 8160" (33M Cache, 2.1 GHz) Or above.
2. Supports PCI Express Generation 3.
3. Intel® C621 Chipset or higher:
    a. AES New Instructions.
    b. Intel® Hyper-Threading Technology.
    c. Intel® Virtualization Technology (VT-x) and for Directed I/O (VT-d).
    d. Intel® Trusted Execution Technology (TXT).
4. **TBS:** Minimum of 24 GB of (6 x 4GB) (DDR4-2666 Mhz) Registered DIMMs, expandable to 1.5 TB.
5. **TBS:** Two SAN storage 16Gb Single Port PCI-e Fiber Channel Host Bus Adapter (If required SAN connectivity). Additional HBA is required to be dedicated for DB backup for DB servers.
6. **TBS:** Minimum of 2 x 300GB 12G 15K SFF Hot pluggable disk drives , expandable to 8 SFF drives with optional drive cage to host another 8 SFF drives for a total of 16 drives.
7. **TBS:** Minimum of 1x Embedded RAID SAS Array controller with 1GB flash packed write cache to support RAID 0, RAID 1, RAID 0+1.
8. **TBS:** Minimum of Embedded 4 x10Gb/s Converged network ports that support network virtualization (16 ports) , 3 more slots are available to accommodate more LAN/SAN dual channel converged network adapters for a total band width of 100Gb/s.
9. One dedicated 1Gb/s port for servers management.
10. **Should have 2 power supply active : active.**
11. Integrated Management card with full management features to support :
    a. Remote servers control.
    b. Remote serves deployment.
    c. Remote server power and performance monitor.
    d. Support unlimited servers migration from X to X (X is physical or Virtual).
12. Installation and startup services to include HW, OS and network configuration.
13. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
14. **3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. HP, IBM, Dell) to cover the following:**
    a. **HW and servers management SW.**
    b. **4 hours response time.**
    c. **Tool free call center # manned 24x7.**
15. All servers HW components must be integrated at the manufacturer factory.
16. **Form factor: full height or double width.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18) على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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18. High-End Blade Server:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be well known brand name Blade Sever.
2. **TBS:** Minimum of Four Intel® Xeon® Processor E7-4850 v4 (40M Cache, 2.10 GHz).
3. Intel® C602J Chipset or higher:
   a. AES New Instructions.
   b. Intel® Hyper-Threading Technology.
   c. Intel® Virtualization Technology (VT-x).
   d. Intel® Trusted Execution Technology (TXT).
4. **TBS:** Minimum of 256 GB RAM – 32x8GB (1x8GB) Dual Rank x4 (DDR4-2400) Registered CAS-9 Memory Kit expandable to 4TB.
5. **TBS:** Minimum of 2x 300 GB 12G SAS 15K 2.5in DP internal Hard disks.
6. **TBS:** Minimum of 1x Embedded RAID SAS Array Controller, with 1GB of flash packed write cache.
7. **TBS:** Minimum of Embedded 6 x10Gb/s Converged network ports that support network virtualization (24 ports), 6 more slots are available to accommodate more LAN/SAN dual channel adapters for a total band width of 180Gb/s.
8. One dedicated 1Gb/s port for servers management.
9. **Should have 2 power supply active : active.**
10. Integrated Management card with full management features to support :
    a. Remote servers control.
    b. Remote serves deployment.
    c. Remote server power and performance monitor.
    d. Support unlimited servers migration from X to X (X is physical or Virtual).
11. Installation and startup services to include HW, OS and network configuration.
12. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
13. **3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. Dell, HP, IBM) to cover the following:**
    a. **HW and servers management SW.**
    b. **4 hours response time.**
    c. **Tool free call center # manned 24x7.**
14. All servers HW components must be integrated at the manufacturer factory.
15. **Form factor: Double Full height or equivalent.**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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19. Rack Cabinet:

Must meet NIC General HW requirements plus the following Minimum of requirements:

Rack & PDU:

1. NetShelter SX 42U 750mm Wide x 1070mm Deep Enclosure with Sides Black Perforated from front and back.
2. Rack Smart PDU 2G, Metered, ZeroU, 22.0kW(32A), 230V, (30) C13 & (12) C19.
3. NetBotz Door Switch Sensors (Two) .
4. Temperature & Humidity Sensor.
5. Modular toolless 1U Airflow Management Blanking Panel to prevent air recirculation by occupying unused rack space.
6. Cable Management Rings.
7. Vertical Cable Manager for NetShelter SX 750mm Wide 42U (Two).
8. Vertical Cable Organizer.

Fiber:

9. iPatch® G2 LC Fiber Shelf, sliding for splicing .
10. PIGTAIL,RISR,LS,0.9MM,SPL Singel-mode.
11. PIGTAIL,RISR,LS,0.9MM,SPL Multi-mode.
12. 360G2 1U Sliding Modular Cassette Shelf for Pre-Terminated .
13. 360 360DM-12LC-Singel-mode Module.
14. 360 360DM-12LC-Multi-mode Module.

UTP:

15. 1100 Evolve Panel, 24 port without modules.
16. Cat 6 F/UTP Cable, 4 pair count, 1000 ft (305 m) length.
17. Cat 6A F/UTP Cable, 4 pair count, 1000 ft (305 m) length.
18. Category 6 U/UTP Information Outlets, white.
19. Faceplate.
20. **3 years Full warranty.**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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20. Blade Enclosure – Option 1:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be well known brand name.
2. Server blade enclosure should be Scalable design to meet future demands and fits in max 10U.
3. **TBS:** Enclosure should accommodate up to 16 half height or 8 full height blade servers or mixed blade servers. Servers should support latest Intel/AMD processors, hot-pluggable SAS/SATA/SD Drives and DDR4 Memory DIMMS.
4. Up to 10 interconnect bays with support high speed fabrics for any I/O , Ethernet, SAN , Infiniband and converged Network technology.
5. Enclosure must Support non-zoned Redundant & Hot Pluggable Power Supply configuration and support N+N with a choice of single or 3 phase (NIC support single power inputs) and View real time thermal data at every level – component in the rack.
6. Redundant Cooling fans that support the failure of at least one fan.
7. The enclosure must be populated with 2 redundant interconnect modules that support:
   o 10 Gb/s Converged Ethernet (FCoE) to host the downlinks of the dual channel 10Gb/s converged adapter LOM (LAN On Motherboard) on the blade server.
   o Virtualized network.
   o Servers profile provisioning within and or across the blade enclosures.
   o 4 uplink that support 1Gb/s, 10Gb/s.
   o 4 uplinks that support 10Gb/s LAN or 4/8/Gb/s SAN.
   o 4 uplinks that support 40Gb/s LAN
   o All uplinks ports must be populated with the proper SFP (to be surveyed at the time of order). The wining vendor must coordinate with NIC network admin on the network integration and cabling.
8. The enclosure should have Integrated KVM.
9. Enclosure should support Dynamic Power Supply Engagement functionality, which (if enabled) puts lightly loaded power supplies into standby mode, driving up the utilization and thus the efficiency on the active supplies.
10. Must be have 2 power supply to feeding it from 2 different source.
11. Front Control Panel with interactive Graphical LCD to monitor and configure the blade enclosure.
12. Two USB Keyboard/Mouse connections and one Video connection.
12. Redundant Management Controllers supports multiple levels of user roles and permissions, including integration into Microsoft Active Directory Services with 2nd Ethernet port supports daisy chaining of CMCs for improved cable management.
13. Enclosure should support FC8 and 10GbE Switches end to end.
14. Enclosure Back Plane should not have any active component.
15. Enclosure should not have single point of failure.
16. Enclosure should support high availability with all hot-swap modular components, including server and I/O modules.
17. Blade management SW that support but not limited to the following:
   o Automatic discovery and mapping of new servers.
   o Classification of server roles and their criticality to the business with associated power policies that enable key business services to stay running in the event of power emergencies.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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    o Automate hardware configuration through OS and application deployment.
    o Automate updates of firmware and OS components together within a single task.
    o Template-based virtual machine deployment.
    o Automate the migration of workloads from existing physical and virtual servers to new physical/virtual servers.
    o Analyze system health and performance.
    o Prevent virtual failures: Take predictive actions automating the movement of virtual machines before hardware issues in VMware ESX/vSphere, Microsoft Hyper-V, and Citrix Xen Server environments.
    o Control from anywhere.

18. 2x32 A PDU core only.
19. Installation and startup services to include HW, OS, network configuration and SAN connectivity.
20. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
21. All servers HW components must be integrated at the manufacturer factory.
22. **3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. Dell, HP, IBM) to cover the following:**
       1. **HW and servers management SW.**
       2. **4 hours response time.**
       3. **Tool free call center # manned 24x7.**

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21. Blade Enclosure – Option 2:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be well known brand name.
2. Server blade enclosure should be Scalable design to meet future demands and fits in max 10U.
3. TBS: Enclosure should accommodate up to 12 half height or 6 full height blade servers or mixed blade servers or mix 5 storage module with 80TB each. Servers should support latest Intel, hot-pluggable SAS/SATA/SD Drives and DDR4 Memory DIMMS.
4. The solution should comply with the industry definition of Composable Infrastructure; where the physical compute, storage and network (compute) fabric resources can be assembled and configured in various combinations to improve the efficiency and accelerate application serviceability.
5. The solution should provide resources that are logically pooled so that administrators don't have to physically configure hardware to support a specific software application. Instead, the software's developer defines the application's requirements for physical infrastructure using policies and compute profiles.
6. The composable solution should be able to provide internal and external storage simultaneously using industry standard protocols
7. Internal (DAS, SAN, iSCSI)
8. External Storage (FC-SAN, iSCSI, NAS etc)
9. The solution should support the use of application programming interface (API) to create (compose) the infrastructure it needs to run on bare metal, as a virtual machine (VM) or as a container.
10. The offered solution be able to optimize any application and store all data on a single infrastructure with fluid pools of physical and virtual compute, storage, and fabric.
11. The proposed Solution should be based on blade server enclosure/chassis architecture.
12. The enclosure (itself) should provide consolidation of compute, fabric and storage resources (up to 12 bay) .
13. The proposed solution's enclosure/chassis should support half-height, full-height or full-height double-wide compute modules. This would ensure the solution can run any kind of workload and better VM density in case of virtualized workloads.
14. Vendor will have to make sure that all the components within the proposed solution are tested to work together and there should be no compatibility or interoperability issues between the hardware (compute, network & storage) and software components (management, hypervisor, OS, software defined compute & storage elements) or the solution.
15. Vendor will have to make sure that the firmware and driver versions are fully compatible and tested with the proposed solution.
16. The solution should have the ability to flexibly scale up and scale down as the workloads dictate and precisely align operating expense to actual usage.
17. Proposed solution should be able to host/provision traditional applications (bare metal/virtual) that are designed to support and automate existing business processes such as collaboration, data processing and analytics, supply chain, and web infrastructure.
18. The solution should be able to host/provision new breed of applications and services which drive revenue and new customer experiences by leveraging Mobility, Big Data, and Cloud Native technologies.

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19. The solution (as a one infrastructure) should be able to host Virtualized, bare-metal, containerized and hyper-converged (based on software-defined-storage) workloads. The actual requirement of hosting different servers in a single enclosure/chassis may vary and could span on multiple enclosures/chassis. However, vendor should offer the solution in the best consolidated manner.

20. The solution should be able to host variety of compute nodes/servers (homogenous and heterogeneous within a single enclosure) having 2-socket or 4-socket CPU architecture. This would ensure better VM density (in case of virtualization) compared to a homogeneous 2-socket processing node. This would also provide better consolidation within the datacenter.

21. Vendor should clearly mention the throughput or backplane capacity of the enclosure/chassis.

22. The proposed enclosure/chassis should support interconnect/switching modules with active/active or active/backup network connectivity.

23. The proposed system's bandwidth and throughput should be aligned with the bandwidth (Ethernet, FC/FCoE & ISCSI) required per server and there should be no bottle neck in the architecture.

24. The enclosure should provide a composable physical storage module/node which should be able to provide direct attached storage or shared storage space to the compute nodes internal or external to the enclosures.

25. The storage module should support large disk configurations and should be configurable for different workloads. (Virtualized as well as bare metal). Any number of drive bays in a storage module can be configured with any compute node, allowing for efficient utilization of available drives.

26. The storage module should be configurable as direct attached storage ans as a hyper-converged storage (software defined storage) simultaneously.

27. Bare-metal and virtualized workloads (servers) should be able to access the storage module directly (zoned drives) or via software defined storage (as hyper-converged solution) simultaneously.

28. The storage module should provide complete storage array functionality for virtualized environments and should provide the basis for turnkey iSCSI storage consumption with iSCSI offload support in a huge number of CNAs.

29. In case of virtualized environment the solution should support industry leading hypervisors (VMware, MS Hyper-V, Linux KVM).

30. In case of virtualized workloads, the storage solution should be certified/qualified with VMware Compatibility Guide, Microsoft Windows Server Catalog, VMware Site Recovery Manager VMware Metro Storage Cluster etc. Vendors are open to mention the equivalent capabilities provided by the proposed solution. It is vendee's discretion to use the suitable feature as per the business requirements.

31. The storage module should support hypervisor based advanced features such as vMotion and Live Migration without purchasing external storage system.

32. Keeping in mind of the future expansion, vendor should clearly mention the expansion capability of the storage module(s) within the enclosure.

33. The storage module should offer the expansion via multiple drive types (12G SAS or 6G SATA HDD and SSD Smart Drives) to be configured in the same storage module. It should

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support mixing of different drive types (SAS/SATA, SSD/HDD) and sizes in a single enclosure.

34. In case of hybrid disk drives in a hyper-converged solution, the storage solution should optimize data (frequently accessed tier/non-frequently accessed tier) transparently between different storage tiers.

35. The enclosure or the compute architecture must have embedded fabric architecture which should be configured as part of the composable infrastructure.

36. The system must support an architecture that can be spread over multiple racks, ensure there is a pre-engineered network design and the whole system are managed as one product.

37. Network connectivity between multiple cabinets as the solution should be able to spread across several racks. The solution should optimize east-west traffic and should enhance the application performance by providing clustering between the nodes/enclosure/chassis without the need of having top-of-the-rack switches.

38. Network resources should allow granular configuration and allocation of bandwidth to compute resources (VMs or OS).

39. Network configuration should allow dedicated quality of service within the compute resources; this should be in addition to the network (physical switch based) quality of service. This would ensure optimized east-west traffic and better application serviceability.

40. The proposed architecture must support out-of-band management solution. True and end to end Out-of-Band Management is a must requirement as it allows to manage infrastructure during security problems, Routing and Spanning Tree Protocol loops and Denial of Service attacks. In case of network attack the operations team should have network access (GUI, CLI) to the overall stack.

41. The compute fabric (network) should offer disaggregated, rack-scale design architecture to consolidate data center network connections, reduce hardware and management complexity, and scale network bandwidth across multiple enclosures.

42. Interconnect/Switching module should support Ethernet as well Fiber Channel connectivity using a single module.

43. Each switching module should support minimum of 240Gb of uplink bandwidth and 240Gbps of downlink bandwidth (internal server connectivity). Each downlink port can be carved up (physical) into multiple ports (Ethernet, FC), and the administrator should be able to configure separate downlink speeds using Ethernet or FC protocols or both simultaneously. This provides the administrator to control the bandwidth availability for the operating system/application.

44. The network interface card (converged network adapter) on the compute nodes should support following functionalities:

45. IEEE quality of service (QoS) 802.1p tagging

46. IEEE 802.1Q virtual local area network (VLAN)

47. TCP, IP, UDP checksum offload, Large Send Offload (LSO), TCP, Segmentation Offload (TSO)

48. It should support overlay networking on host performance with tunnel offload support for VXLAN and NVGRE

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49. It should support Single-Root I/O Virtualization (SR-IOV) which provides a mechanism to bypass the host system hypervisor in virtual environments providing near metal performance and server efficiency.
50. The network interface card should be configured as part of the stateless computing profiles.
51. The downlink should support Ethernet, Fiber Channel over Ethernet/CEE or Accelerated iSCSI protocol.
52. There should be no bottle neck and the provided solution should be able to achieve ratio of 1:1. This would provide low latency communication across the overall solution stack.
53. Vendor should clearly detail the oversubscription ratio in the proposed solution (server downlink bandwidth to network uplink bandwidth).
54. Interconnects or switching modules should be of non-blocking architecture and should provide line rate throughput with low latency of 1 microsecond.
55. All the Ethernet ports on the switching modules should be fully licenses and there should be no extra costs associated to it (apart from SFP modules).
56. Vendor should clearly state if additional licenses are required for the future network (Ethernet), it should be clearly mentioned that how many ports are licensed from the day one of the proposed solution.
57. Blade management SW that support but not limited to the following:
    o Automatic discovery and mapping of new servers.
    o Classification of server roles and their criticality to the business with associated power policies that enable key business services to stay running in the event of power emergencies.
    o Automate hardware configuration through OS and application deployment.
    o Automate updates of firmware and OS components together within a single task.
    o Template-based virtual machine deployment.
    o Automate the migration of workloads from existing physical and virtual servers to new physical/virtual servers.
    o Analyze system health and performance.
    o Prevent virtual failures: Take predictive actions automating the movement of virtual machines before hardware issues in VMware ESX/vSphere, Microsoft Hyper-V, and Citrix Xen Server environments.
    o Control from anywhere.
58. 2x32 A PDU core only.
59. Installation and startup services to include HW, OS, network configuration and SAN connectivity.
60. Installation and startup services for the servers management SW and integrate this with NIC servers management system.
61. All servers HW components must be integrated at the manufacturer factory.
62. Enclosure should support FC8 and 10GbE Switches end to end.
63. Enclosure Back Plane should not have any active component.
64. Enclosure should not have single point of failure.
65. Enclosure should support high availability with all hot-swap modular components, including server and I/O modules.
66. Two USB Keyboard/Mouse connections and one Video connection.

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67. Redundant Management Controllers supports multiple levels of user roles and permissions, including integration into Microsoft Active Directory Services with 2nd Ethernet port supports daisy chaining of CMCs for improved cable management.

68. Enclosure should support Dynamic Power Supply Engagement functionality, which (if enabled) puts lightly loaded power supplies into standby mode, driving up the utilization and thus the efficiency on the active supplies.

69. Must be have 2 power supply to feeding it from 2 different source.

70. The enclosure must be populated with 2 redundant interconnect modules that support:

71. 10 Gb/s Converged Ethernet (FCoE) to host the downlinks of the dual channel 10Gb/s converged adapter LOM (LAN On Motherboard) on the blade server.

72. Virtualized network.

73. Servers profile provisioning within and or across the blade enclosures.

74. 4 uplink that support 1Gb/s, 10Gb/s.

75. 4 uplinks that support 10Gb/s LAN or 4/8/Gb/s SAN.

76. All uplinks ports must be populated with the proper SFP (to be surveyed at the time of order). The wining vendor must coordinate with NIC network admin on the network integration and cabling.

77. The enclosure should have Integrated KVM.

78. **3 years 24x7 support on labor and parts, this warranty should be from the main vendor directly (i.e. Dell, HP, IBM) to cover the following:**
   a. HW and servers management SW.
   b. 4 hours response time.
   c. Tool free call center # manned 24x7.

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22. Small/ Medium Load Balancer devices:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must a brand name product.
2. It must support L4 load balancing and L7 content switching.
3. It must support global load balancing.
4. Should support at least 10 Gbps Traffic throughputs.
5. Must support Hardware SSL.
6. It must be a FIPS 140-2 Level 2 certified.
7. It must have the Hardware compression feature.
8. It must support Virtualization\ (Maximum Number of Guests 4).
9. **TBS:** Minimum of 4 CPU Cores.
10. **TBS:** Minimum of 8 GB of memory.
11. **TBS:** Hard drive minimum of 800 GB.
12. **TBS:** At least 4 Gigabit Ethernet CU Ports.
13. **TBS:** At least 2 SFP (Gigabit Fiber Ports).
14. **TBS:** At least 2 SFP+s (10 Gigabit Fiber Ports).
15. It must have Dual Power Supplies.
16. Input Voltage must be 90-240 VAC +/- 10% auto switching, 50/60 Hz.
17. Operating Temperature must be between 32° to 104° F (0° to 40° C).
18. Operational Humidity 10 to 90% @ 40° C.
19. Comprehensive load balancing methods: Round Robin, Least Connections, Weighted RR, Weighted LC, Fastest Response.
20. Health Monitoring support.
21. It must be a NEBS Level 3 Certified.
22. **3 Years Full Warranty.**

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23. High end Load Balancer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must a brand name product.
2. It must support L4 load balancing and L7 content switching.
3. It must support global load balancing.
4. Should support at least 40 Gbps Traffic throughputs.
5. Must support Hardware SSL.
6. It must support Hardware DDoS Protection\ 80 M SYN-Cookies Per Second.
7. It must have the Hardware compression features.
8. It must support Virtualization\ (Maximum Number of Guests 12).
9. **TBS:** Minimum of 12 CPU Cores.
10. **TBS:** Minimum of 128 GB of memory.
11. **TBS:** Hard drive minimum of 800 GB.
12. **TBS:** At least 8 Gigabit Ethernet CU Ports.
13. **TBS:** At least 4 SFP (Gigabit Fiber Ports).
14. **TBS:** At least 4 SFP+s (10 Gigabit Fiber Ports).
15. It must supports 40 Gigabit connection with option to convert ports to 10 Gigabit.
16. It must have Dual Power Supplies.
17. Input Voltage must be 90-240 VAC +/- 10% auto switching, 50/60 Hz.
18. Optional DC power supply.
19. Operating Temperature must be between 32° to 104° F (0° to 40° C).
20. Operational Humidity 10 to 90% @ 40º C.
21. Comprehensive load balancing methods: Round Robin, Least Connections, Weighted RR, Weighted LC, Fastest Response.
22. Health monitoring support.
23. **3 Years Full Warranty.**

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Communication Devices

24. Campus Core Switch:

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Feature	3 Slots Chassis	4 Slots Chassis	6 Slots Chassis	9 Slots Chassis	13 Slots Chassis	7 Slots Chassis
Virtual Switching System	Supported					
Switching Fabric	2-Terabits-per-second (Tbps) Standalone 4-Terabits-per-second (Tbps) with Virtual Switching System					11.4Tbps Standalone 22.7Tbps with VSS
Switching Capacity	80-Gbps per slot					880-Gbps Per slot
VLAN	4,096					
MAC Table	128,000					
Routes	Minimum: 256,000(IPv4) Minimum: 128,000 (IPv6)					
Netflow	Minimum: 512,000					
Multicast Routes	128,000 (IPv4) 128,000 (IPv6)					
Layer-3 classification and marking access control entries	Minimum: 64,000 shared for QOS / Security					
Aggregate traffic rate-limiting policers	16348					
Reliability and availability	- Fast software upgrade - Stateful Switchover - Nonstop Forwarding - In Service Software Upgrade - Online insertion and removal Hot Swap of power supplies, modules, fan trays and Supervisors - Enhanced Fast Software Upgrade 16 Way Layer 3 Load-Balancing - Control Plane Policing					
Software Features	Routing Information Protocol, static routing, Protocol Independent Multicast, Layer 2 capabilities, manageability, security, IPv6, Quality of Service (QoS), Open Shortest Path First, Enhanced Interior Gateway Routing Protocol, Border Gateway Protocol, PIM Label imposition/disposition (MPLS-PE), swapping (MPLS-P), Label Distribution Protocol (LDP), MPLS VPN, VRF Lite, QoS mechanisms using experimental (EXP) bits, MPLS-RSVP-TE, MPLS differentiated services (diffserv)-aware traffic engineering (MPLS-DS-TE), MPLS traceroute, EoMPLS, EoMPLS tunnels, Native VPLS in HW, Native L2 over multipoint GRE, VRF-aware operational contexts, VPN Netflow support, VPN aware NAT, VRF-lite scalability, VLAN reuse per sub-interface, Secure Group Tagging, Secure Group Access Control Lists, MACSec (IEEE					

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	802.1ae), Control and Monitoring Processor				
Smart Operations Features	Smart Install, Smart Ports, AutoQoS, Flexible NetFlow, IP SLAs, Embedded Event Manager, Encapsulated Remote SPAN, Smart Call Home, Generic Online Diagnostics, Built-in Protocol Analyzer/Wireshark, Time Domain Reflectometer, Configuration Rollback, Onboard Failure Logging				
Security Features	EEE 802.1x, IEEE 802.1AE				
Supervisor Uplinks	3 x 1 GE (SFP) 2 x 10 GE (X2) 1 management (CMP)				
Redundant Supervisor	Supported				
Dual power Supply	Supported				Support up to 4 AC power supplies
DRAM	2GB Upgradable to 4GB				
Max 10/100/1000 ports	99	147	243	387	534	243
Max 10 GE ports	34	50	82	130	180	82
Max 40 GE ports	8	12	20	32	44	20
Height (RU)	4	5	11	14	19	10
Warranty	**3 Years Full Warranty.**				

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المواصفات الفنية القياسية للأجهزة   ص ٥٢ من ١٢٨   النسخة: 8_2017

25. Campus Aggregation Switch:

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Feature	3 Slots Chassis	6 Slots Chassis	7 Slots Chassis	10 Slots Chassis	Fixed Chassis	4 Chassis slots Instant Access Parent	Fixed Chassis Instant Access Parent
Virtual Switching System	Supported						
Switching Fabric	Up to: 928Gbps				800Gbps, 1.6-Tbps with VSS	2 Tbps 4 - Tbps with VSS	960 Gbps 1.92-Tbps with VSS
Layer 3 Throughput	Minimum: 250 Mpps (IPv4) Minimum: 125 Mpps (IPv6)					300 Mpps (IPv4) 150 Mpps (IPv6)	Up to: 180 Mpps (IPv4) 90 Mpps (IPv6)
VLAN	4,000						
MAC Table	55,000					128,000	
Routes	Minimum: 256,000(IPv4) Minimum: 128,000 (IPv6)					2048K (IPv4) 1024K (IPv6)	256K (IPv4) 128K (IPv6)
Netflow	128,000				-	1024 Per slots	1.5 M
Multicast Routes	32,000				Minimum: 24,000 (IPv4) Minimum: 12,000 (IPv6)	128K (IPv4) 128K (IPv6)	128K (IPv4) 64K (IPv6)
Reliability and availability	- Fast software upgrade - Stateful Switchover and Nonstop Forwarding - In Service Software Upgrade - Online insertion and removal Hot Swap of power supplies, modules, fan trays and Supervisors Control Plane Policing						
Software Features	Routing Information Protocol, static routing, Protocol Independent Multicast, Layer 2 capabilities, manageability, security, IPv6, Quality of Service (QoS), Open Shortest Path First, Enhanced Interior Gateway Routing Protocol, Border Gateway Protocol, PIM Label imposition/disposition (MPLS-PE), swapping (MPLS-P), Label Distribution Protocol (LDP), MPLS VPN, VRF Lite, QoS mechanisms using experimental (EXP) bits, MPLS-RSVP-TE, MPLS differentiated services (diffserv)-aware traffic engineering (MPLS-DS-TE), MPLS traceroute, EoMPLS, EoMPLS						

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	tunnels, Native VPLS in HW, Native L2 over multipoint GRE, VRF-aware operational contexts, VPN Netflow support, VPN aware NAT, VRF-lite scalability, VLAN reuse per sub-interface, Secure Group Tagging, Secure Group Access Control Lists, MACSec						
Smart Operations Features	Smart Install, AutoQoS, Flexible NetFlow, IP SLAs, Embedded Event Manager, Smart Call Home, Generic Online Diagnostics, Protocol Analyzer/Wireshark, Time Domain Reflectometer				Monitoring:Flexible Netflow Security:TrustSec, MACSec QoS:Supported for MediaNet		
Security Features	EEE 802.1x, IEEE 802.1AE						
Dual Power Supply	Supported						
Supervisor Uplinks	8 x 10 GE / 1 GE				8 x 10 Gigabit Ethernet Port uplink module	Up to 80 x 10 GE ports Up to 80x 1 GE ports Up to 20x 40 GE ports	40 x 10G native + 8 x 10G SFP 2 x 40G native + 10x40G QSFP
Redundant Supervisor	No	No	Yes	Yes	No		
DRAM	4GB				4GB		
Max 10/100/1000 ports	100	244	244	388	40	158 (VSS)	-
Max 10 GE ports	28	64	64	100	40	158 (VSS)	78 (VSS)
Height (RU)	7	10	11	14	1	5	2
Warranty	**3 Years Full Warranty.**						

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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26. Campus Access Switch

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Feature	Unified Access Modular Uplinks	Traditional Access	Fixed Chassis Req. Parent
Access Ports	24 or 48 (10/100/1000)		48 (10/100/1000)
Uplinks	4 x 1GE (SFP) Or 2 x 10GE (SFP+) Or 4 x 10GE (SFP+)	4 x 1GE (SFP) Or 2 x 10GE (SFP+)	2 x 10G (SFP)
Parent switch	-		Required
Stackable	Yes		
Stack Throughput	480Gbps bandwidth Up to 9 switches in stack	80Gbps bandwidth FlexStack-Plus Up to 8 switches in stack	Up to 80Gbps Flex Stack-Plus Up to 5 switches in stack
MAC	32,000	16,000	128,000
Routes	24,000 (IPv4)	-	Minimum: 256,000(IPv4) Minimum: 128,000 (IPv6)
PoE (*If Required*)	PoE+(30W) on all ports, or UPOE (60W) on 30 ports	PoE+(30W) on up 24 ports and up to 48 ports for PoE	PoE+ (30W) 24 ports PoE (15.4W) 48 ports
Power Supply	Dual redundant and modular	Dual redundant	Dual redundant and modular
Flexible NetFlow (FNF)	Supported on all ports	Netflow light	
Smart Operations	Smart Install client, Smart Install Director, Auto Smartports, Generic Online Diagnostics, Onboard Failure Logging, Embedded Event Manager, IP SLA, Energy Efficient Ethernet (IEEE 802.3az), WireShark	Smart Install, Auto Smartports, AutoQoS, Smart Call Home, Generic Online Diagnostics, Energywise, Deep Sleep Mode/Hibernation mode, Energy Efficient Ethernet (IEEE 802.3az)	Integrated with parent switch
Wireless Controller	Up to 100 Access Points, 40G throughput (48 ports), 20G throughput (24 ports)	-	
Wireless Modes	Mobility Agent or Mobility Controller	-	
VLAN IDs	4096		
Resiliency and High Availability	StackWise with Stateful Switchover, Nonstop Forwarding, StackPower, online insertion and removal of stack members	Cross-stack EtherChannel, IEEE 802.1s, IEEE 802.1w, Per-VLAN Rapid Spanning Tree (PVRST+), Hot Standby Router Protocol (HSRP), Optional external RPS	
Security Features	IEEE 802.1X, Device Sensor, Source Group Tagging, Policy	Image validation for Secure boot of Signed images, IPv6 First Hop Security, MACSec, TrustSec	

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

	Enforcement, Security Group Access Control List, MACsec, Network traffic monitoring		
Architecture	Modular OS, RJ45 & Mini USB Console Ports for Management, USB 2.0 for OS Management, Front to Back Airflow system, Multicore CPU, 2GB of Flash, 4GB of DRAM, 1 10/100/1000 dedicated Ethernet Management Port, 3 fans, 1RU	Dual Core 600MHz CPU, 512MB DRAM, 128MB Flash,	APM86392 600MHz dual core Dual Core 600MHz CPU 512MB DRAM, 128MB FLASH, 4MB Egress Buffers,
Warranty	**3 Years Full Warranty.**		

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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27. Data Center Core/Aggregation Switch

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Feature	SDN Capabilities				NO SDN Capabilities		
	4 Chassis slots	8 Chassis slots	16 Chassis slots	Fixed Chassis	6 Slots Chassis	10 Slots Chassis	18 Slots Chassis
Performance	1.6 Tbps 1.44 bpps	2.88 Tbps 2.16 bpps	2.88 Tbps 1.44 bpps	2.88 Tbps / 12.8 Tbps	21 Tbps	42 Tbps	83 Tbps
Form factor	7	13	21	2	9	14	26
Ports	-			36 ports 40G QSFP+ / 64-port 40/100G QSFP28 ports	-		
Bandwidth per slot	3.84				1.3		
Bandwidth per system	15	30	60	-	21	42	83
Maximum number of 1/10G BASE-T ports	192	384	768	-	192	384	768
Maximum number of 10 GE ports	576	1152	2304	-	192	384	768
Maximum number of 40 GE ports	144	288	576	-	96	192	384
Maximum number of 100GE ports	32	64	128	-	48	96	192
Airflow	Front-to-back						
Supervisor A	4-core, 1.8-GHz x86 CPU, with 16 GB of RAM and 64-GB solid-state disk (SSD) drive			-	Dual Quad-Core Xeon at 2.13Ghz 32Gb Memory FCoE support (Multi-Hop FCoE) 8+1 Virtual Device Contexts		
Supervisor B	6-core, 2.2-GHz x86 CPU, with 24 GB of RAM and 256-GB SSD drive			-			
100GE modules	Front panel ports: 8 x 100 GE, Standalone ACI leaf (NO), ACI spine (NO) Switching performance: Non-blocking Buffer: 24 MB Power per watt per port: 54			-	12 x 100GbE ports (CPAK), 1.2Tbps fabric throughput, 1.8 Billion packets per second (Bpps) of distributed Layer 2 and Layer 3 forwarding, NetFlow, Fex Support, vPC, FabricPath, FCoE, OTV, LISP, MPLS		
40GE	36 x 40	36 x 40 GE	32 x	36 x 40	Buffer:72	24 x 40GbE ports (QSFP+),	

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modules	GE	ACI leaf	40 GE	GE ACI spine		960Gbps fabric throughput, 1.44 Billion packets per second (Bpps)
	Standalone (YES)			(NO)		
	ACI leaf (NO)	(YES)		(NO)		of distributed Layer 2 and Layer 3 forwarding, NetFlow, Fex Support, vPC, FabricPath, FCoE, OTV, LISP, MPLS
	ACI spine (NO)			(YES)		
	Switching performance: Non-blocking	1.5:1 oversubscribed	Greater than 200 Byte	Non-blocking		
	Buffer: 36MB	104MB	24MB	42MB		
10GE modules	48 x 10 GE + 4 x 40 GE	48 x 10 GE + 4 x 40 GE	48 x 10 GE + 4 x 40 GE	48 x 10 GE + 4 x 40 GE		48 x 1G/10GbE ports (SFP/SFP+), 480Gbps fabric throughput, 720 Million packets per second (Bpps) of distributed Layer 2 and Layer 3 forwarding, NetFlow, Fex Support, vPC, FabricPath, FCoE, OTV, LISP, MPLS
	Standalone (YES)					
	ACI leaf (NO)					
	ACI spine (NO)					
	Switching performance: Non-blocking		Switching performance: Greater than 200 Byte			
	Buffer:104 MB		Buffer:12 MB			
Advanced optics	40 Gigabit Ethernet Quad Enhanced Small Form-Factor Pluggable (QSFP+) bidirectional transceiver that enables customers to use existing 10 Gigabit Ethernet data center cabling to support 40 Gigabit Ethernet connectivity. This feature allows the adoption of 40 Gigabit Ethernet without cable infrastructure upgrade costs.					-
Highly available, scalable, and robust solution	All major components are redundant, including supervisors, system controllers, power supplies, and fan trays. The switch line cards use a mix of merchant and application-specific integrated circuits (ASICs) to produce a low-complexity, low-cost design. All buffer memory is integrated into the forwarding ASICs, avoiding the need for a large number of external memory modules. All transceivers are pluggable to support the highest possible mean time between failure (MTBF) for the switch.				Designed for a spine role only. Leaf role nodes enable an automated and policy driven ACI architecture. The switch offers advanced scalability in the smallest spine switch form factor,The degree of redundancy in leaf-and-spine	OIR of all redundant components: Supervisor and fabric modules, power supplies, and fan trays

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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		architectures delivers increased availability with a high level of flexibility in workload placement			
Chassis designed for 2 to 3 future generations of line cards	The flexible and efficient chassis design has 100% headroom for future expansion, with the capability to support more bandwidth and cooling and twice the number of power supplies needed to support today's maximum configuration.	-	-	-	-
Power efficiency	It is the first switch chassis designed without a midplane. Line cards and fabric modules connect directly. This design approach provides optimal front-to-back airflow and helps the switch operate using less power. In addition, All models power supplies are 80 Plus Platinum rated. The typical power consumption per 10 Gigabit Ethernet port is less than 3.5 watts (W). The typical power consumption of each 40 Gigabit Ethernet port is less than 14W.	930W DC power supplies (up to 2)		3 power supply slots Power requirements: 110 to 240 VAC supports 6- to 7.5-kW AC and DC power supplies	power supply slots Power requirements: 110 to 240 VAC Supports 6- to 7.5-kW AC and DC power supplies
Routes	128,000		-	-	-
IP host entries	208,000		-	-	-
MAC entries	160,000		-	-	-
VLANs	4096		-	-	-
Warranty	**3 Years Full Warranty.**				

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ **Vendors must comply with instructions (page 6 to 18)**

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28. Data Center Access Switch:

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):							
			29.				
Features	72 Ports	128 Ports	32 ports	48 ports	96 ports	48 ports	96 ports
Rack Unit	1	2	1		2	2	3
Switching Capacity	1.44 Tbps	2.56 Tbps	2.56 Tbps	1.44 Tbps	2.4 Tbps	1.92 Tbps	2.56 Tbps
Port-to-Port Latency	~1 Microsecond		1 to 2 Microsecond				
Mac Table	256,000		96,000*				
IP Unicast Routes	32,000 (IPv4) / 8,000 (IPv6)						
IP Hosts	128,000 (IPv4) / 64,000 (IPv6)		208,000*				
IP Multicast Routes	32,000 (IPv4) / 16,000 (IPv6)						
Layer 3 Capabilities	Integrated Line-Rate						
10 Gigabit Ethernet Port Density	72 Line-Rate	96 Line-Rate	32 Line-Rate	48 Line-Rate	96 Line-Rate	48 Line-Rate	96 Line-Rate
40 Gigabit Ethernet Port Density	6 Line-Rate	12 Line-Rate	-	6 Line-Rate	6 Line-Rate	12 Line-Rate	8 Line-Rate
1/10 Gigabit Ethernet Fabric Extender Port Scalability	1152		With 2000 Series 16 Per switch				
FCoE	T11 standards-compliant FCoE (FC-BB-5), T11 FCoE Initialization Protocol (FIP) (FC-BB-5), Any 10 or 40 Gigabit Ethernet port configurable as FCoE, SAN administration separate from LAN administration, Fibre Channel forwarding (FCF), Fibre Channel enhanced port types: VE, VF and VNP, Direct attachment of FCoE targets, Fabric Device Management Interface (FDMI), Fibre Channel ID (FCID) persistence, Distributed device alias services, In-order delivery, Port tracking, FCoE NPV technology, N-port identifier virtualization (NPIV), Fabric services: Name server, registered		Leaf switches for SDN are fixed-port switches designed for top-of-rack (ToR) and middle-of-row (MoR) deployment in data centers that support enterprise applications, service provider hosting, and cloud computing environments. These Layer 2 and 3 nonblocking switches support 10 and 40 Gigabit Ethernet and Fibre Channel over Ethernet (FCoE) with up to 2.56 terabits per second (Tbps) of internal bandwidth.				

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	state change notification (RSCN), login services, and name-server zoning, Per-VSAN fabric services, Fabric Services, Distributed device alias services, Host-to-switch and switch-to-switch FC-SP authentication, Fabric Shortest Path First (FSPF), Standard zoning, Enhanced zoning, Fabric Analyzer, Data Center Network Manager-SAN, Storage Management Initiative Specification (SMI-S), Boot from SAN over vPC and Enhanced vPC (EvPC), FCP, VSAN trunking, Fabric Device Management Interface (FDMI), Fibre Channel ID (FCID) persistence, Distributed device alias services, In-order delivery, Port tracking, NPV technology, Fabric binding for Fibre Channel, Port security, Fibre Channel traceroute, Fibre Channel ping, Fibre Channel debugging	
Layer 2 Features	Layer 2 switch ports and VLAN trunks, IEEE 802.1Q VLAN encapsulation, Support for up to 4000 VLANs, Support for up to 4000 access control list (ACL) entries, Rapid Per-VLAN Spanning Tree Plus (PVRST+) (IEEE 802.1w compatible), Multiple Spanning Tree Protocol (MSTP) (IEEE 802.1s): 64 instances, Spanning Tree PortFast, Spanning Tree root guard Spanning Tree Bridge Assurance, EtherChannel technology (up to 16 ports per EtherChannel), vPC technology, vPC configuration synchronization, vPC shutdown Link Aggregation Control Protocol (LACP): IEEE 802.3ad, Advanced PortChannel hashing	Reserved range remapping, Private VLANs (PVLANs), Isolated ports and promiscuous ports, PVLAN on PortChannels and vPCs, PVLANs: Fabric extender, Isolated ports, Virtual PortChannel (vPC), Spanning Tree Protocol ,IEEE 802.1w Rapid Spanning Tree (Rapid PVST+), IEEE 802.1s Multiple Spanning Tree (MST), Edge port and edge-port trunk, Extensions: Bridge Protocol Data Unit (BPDU) guard, BPDU filtering, bridge assurance, loop guard, and root guard VLAN Trunk Protocol (VTP) Versions 1 and 2 (v1 and v2): Transparent mode, MAC addresses: Static, Unicast and multicast , IEEE 802.3x Flow Control, IEEE 802.1AB Link Layer Discovery Protocol (LLDP), User-configurable interface maximum transmission unit (MTU) and jumbo frames, Automatic medium-dependent-interface crossover (auto-MDIX), Unidirectional Link Detection (UDLD)

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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	based on Layer 2, 3, and 4 information, Jumbo frames on all ports (up to 9216 bytes), Pause frames (IEEE 802.3x), Storm control (unicast, multicast, and broadcast), Private VLANs Private VLAN over trunks (isolated and promiscuous), Private VLANs over vPC and EtherChannels, VLAN remapping, FabricPath, Dynamic Fabric Automation, EvPC and vPC+ with FabricPath, Adapter FEX, Data Center VM-FEX, Support for up to 24 fabric extenders (Layer 2) with each switch	
Layer 3 Features	Layer 3 interfaces: Routed ports, switch virtual interface (SVI), PortChannels, subinterfaces, and PortChannel subinterfaces, Support for up to 32,000 IPv4 and 8000 IPv6 host prefixes, Support for up to 8000 multicast routes (IPv4), Support for up to 8000 IGMP snooping groups, Support for 4000 Virtual Routing and Forwarding (VRF) entries, Support for up to 4096 VLANs, Equal-Cost Multipathing (ECMP) up to 64 ways, 4000 flexible ACL entries, Routing protocols: Static, Routing Information Protocol Version 2 (RIPv2), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First Version 2 (OSPFv2), and Border Gateway Protocol (BGP), IPv6 routing protocols: Static, OPFv3, BGPv6, and EIGRPv6, IPv6 VRF-lite, BFD support: OSPFv2, BGPv4, EIGRP, VRFs, Policy-Based Routing (IPv4 and IPv6), Hot-Standby Router Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP), IPdirect broadcast, vPC+ Routing Protocol Peering, ACL: Routed ACL with Layer 3	• IPv4 Static routes BGP, EIGRP, OSPFv2, and Intermediate System to Intermediate System (ISIS) Virtual Routing and Forwarding Lite (VRF-Lite) and VRF route leaking Hot Standby Router Protocol (HSRP) v1 and v2 Virtual Router Redundancy Protocol (VRRP) Bidirectional Forwarding Detection (BFD) Dynamic Host Configuration Protocol (DHCP) relay • IPv6 Static routes BGP and OSPFv3 VRF-Lite and VRF route leaking HSRPv6 VRRPv3 DHCP relay • BGP enhancements disable-peer-as-check: Advertise routes learned from one node in one autonomous system (as) to another node in the same autonomous system. allow-as in: Allow routes having their own autonomous systems in the autonomous system path (as-path) to be installed in the BGP routing information base (BRIB). best-as-path-relax: Allow paths received from different autonomous systems to be handled as multipath if their as-path lengths are the same and other multipath conditions are met. best-as-path-relax: Allow paths received from different autonomous systems to be handled as multipath if their as-path lengths are the same and other multipath conditions are met. transport connection-mode passive: Allow a passive connection setup only. remove private-as enhancements [no | default]: Remove-private-

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	and 4 options to match ingress and egress ACL, Multicast: Protocol Independent Multicast Version 2 (PIMv2) sparse mode, Source-Specific Multicast (SSM), Bidir-PIM, Multicast Source Discovery Protocol (MSDP), IGMPv2 and v3, and Multicast VLAN Registration (MVR), VRF: VRF-lite (IP VPN); VRF-aware unicast; and BGP-, OSPF-, RIP-, and VRF-aware multicast, Unicast Reverse Path Forwarding (uRFP) with ACL; strict and loose modes, Jumbo frame support (up to 9216 bytes), Support for up to 24 fabric extenders on each data center access switch	as [all] [replace-as] MD5 authentication for prefix-based neighbors: Allow authentication for prefix-based neighbors. External BGP (EBGP) next-hop is unchanged IPv6 route updates over IPv4 peering EBGP scales to 1000 peers with BFD 64-way ECMP User-configurable MAC addresses (16) on routed interfaces
Resiliency and High Availability	ISSU for Layer 2, Hot-swappable field-replaceable power supplies and fan modules, N+1 and N+N power redundancy, N+1 fan module redundancy	Single binary image across platforms, Fault isolation per process, ISSU, Process patching, Stateless process restart, Stateful supervisor switchover, Online insertion and removal (OIR) of modules without disruption of traffic
Warranty	**3 Years Full Warranty.**	

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29. small/medium campus and remote-site Router:

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Form factor	1 RU	1 RU	2 RU
Integrated WAN Ports	GE / SFP GE SFP	2 PoE GE / SFP 2 GE / SFP	2 PoE GE / SFP 2 GE / SFP
Performance	100 Mbps Upgradable to 300 Mbps	500 Mbps Upgradable to 1 Gbps	1 Gbps Upgradable to 2 Gbps
Management port	2 GE (Integrated out of Band)	4 GE (Integrated out of Band)	5 GE (Integrated out of Band)
Network Interface Modules (NIM	2	3	3
Enhanced Services Modules (SM-X)	single-wide	N/A	2 single- or 1 double-wide
USB Ports (type A)	1	2	2
Integrated Services Card (ISC) slots	2 (PVDM 4)	4 (PVDM 4)	5 (PVDM 4
Default/max Flash	4 GB / 16 GB	8 GB / 32 GB	8 GB / 32 GB
Default/max DRAM	4 GB / 16 GB	4 GB / 16 GB	4 GB / 16 GB
Redundant power supply	yes	yes	yes
Server virtualization platform (UCS E-Series) and Network Compute Engine (NCE)	2-core single-wide, 2-core NCE 4-core single-wide, 4-core NCE	4-core NCE	2-core single-wide, 2-core NCE 4-core single-wide, 4-core NCE 4-core double-wide
Zone-based firewall and NAT services	VRF-Aware Firewall and Network Address Translation (NAT)	VRF-Aware Firewall and Network Address Translation (NAT)	VRF-Aware Firewall and Network Address Translation (NAT)

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

IPSEC VPN services	FlexVPN, Easy VPN remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN)	FlexVPN, Easy VPN remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN)	FlexVPN, Easy VPN remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN)
Cisco Unified Survivable Remote Site	Up to 100	Up to 1200	Up to 2000
Telephony support	Up to 100	Up to 1200	Up to 2000
Cisco Unified Communications	Up to 100	Up to 350	Up to 450
IPv4 routing protocols	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PfR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PfR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PfR
IPv6 routing protocols	EIGRP, RIP, OSPFv3, IS-IS,	EIGRP, RIP, OSPFv3, IS-IS,	EIGRP, RIP, OSPFv3, IS-IS,
PoE support (wattage)	250 W	250 W	500 W
License	Security license		
Warranty	**3 Years Full Warranty.**	**3 Years Full Warranty.**	**3 Years Full Warranty.**

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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30. Enterprise Head Office/Large Campus Router:

Must meet NIC General HW requirements plus the following Minimum of requirements (you can chose one column only):

Features	Fixed	Fixed	4 Slots Chassis	6 Slots Chassis	9 Slots Chassis	13 Slots Chassis
Form Factor	1	2	4	6	9	13
Supported Bandwidth	60 Gbps	100 Gbps	10-40 Gbps	40-100 Gbps	40-200 Gbps	40-200 Gbps
Max Embedded Services Processor (ESP)	Integrated		1	2		
Embedded Services Processor (ESP) Options	Integrated		ESP10 & ESP-10-N (10Gbps) ESP20 (20Gbps) ESP40 (40Gbps)	ESP40 (40Gbps) ESP100 (100Gbps)	ESP 40 (40Gbps) ESP100 (100Gbps) ESP200 (200Gbps)	
Route Processor (RP)	Integrated		1	2		
SPA Interface Processor (SIP) Card Slots	Integrated		2		3	6
Shared Port Adapter (SPA) Slots	N/A	N/A	8		12	24
Built-In SFP GE Ports	Up to 12	8	0			
Built-In SFP 10 GE Ports	Up to 8	8	0			
Redundancy	Software			Hardware		
Redundant power supply	Yes: Dual power support; option of either AC or DC			Yes: N+1 power supply redundancies; option of either AC or DC		Yes: Quad power supplies (redundant pairs); option of either AC or DC
Air-Flow	Front-to-back					
DRAM	8GB	16GB	2GB (ESP10) 4GB (ESP20) 8GB (ESP40)	8GB (ESP40) 16 GB (ESP100)	8GB (ESP40) 16GB (ESP100) 32GB (ESP200)	
Resource Memory	4 GB	4 GB	512 MB (ESP10/10N) 1 GB (ESP20/40)	1 GB (ESP20/40) 4 GB (ESP100)	1 GB (ESP20/40) 4 GB (ESP100) 8 GB (ESP200)	

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

Packet Buffer	512 MB	1 GB	128 MB (ESP10/10N) 256 MB (ESP20/40)	256MB (ESP40) 1GB (ESP100)	256MB (ESP40) 1GB (ESP100) 2GB (ESP200)
Number of QoS Queues	116,000	232,000	128,000 (ESP20) 128,000 (ESP40)	128,000 (ESP40) 232,000 (ESP100)	128,000 (ESP40) 232,000 (ESP100) 464,000 (ESP200)
TCAM Size	40 MB	80 MB	10 MB (ESP10/10N) 40 MB (ESP20/40)	40MB (ESP40) 80MB (ESP100)	40MB (ESP40) 80MB (ESP100) 160MB (ESP200)
Supported Interfaces	10 Gigabit Ethernet, Gigabit Ethernet, Fast Ethernet, OC-192/STM-64 PoS, OC-48/STM-16 PoS, OC-12/STM-4 PoS, OC-3/STM-1 PoS, T3/E3, Channelized T3 at T1, Channelized T3 at DS-0, OC-3/STM-1 ATM, OC-12/STM-4 ATM, CHT1/CHE1 @ DS-0, V.35/X.21/EIA-232, ChSTM1 @ T3/E3, ChSTM1 @ T1/E1, ChSTM1 @ DS-0				
Encryption throughput	19 Gbps	39 Gbps	9.2 Gbps (ESP20) 12.9 Gbps (ESP40)	12.9 Gbps (ESP40) 29 Gbps (ESP100)	12.9 Gbps (ESP40) 29 Gbps (ESP100) 78 Gbps (ESP200)
Routing Protocols	IPv4 routing Protocols: Static, Routing Information Protocol Version 2, Enhanced Interior Gateway Routing Protocol, Open Shortest Path First Version 2, and Border Gateway Protocol, IPv6 routing protocols: Static, OPFv3, BGPv6, and EIGRPv6				
Forwarding Rate	Up to 43 Mpps	Up to 78 Mpps	ESP20/40:Up to 25 Mpps.	ESP40:Up to 25 Mpps. ESP100:Up to 80 Mpps	ESP40:Up to 25 Mpps. ESP100:Up to 80 Mpps ESP200:Up to 152 Mpps
Access Control Lists (ACL) and Access Control Entries (ACE)	Up to 4000 unique ACLs and 120,000 ACEs per system	4,000 unique ACLs and 400,000 ACEs per system.	ESP20/40:4,000 unique ACLs and 100,000 ACEs per system.	ESP40:4,000 unique ACLs and 100,000 ACEs per system. ESP100/200:4,000 unique ACLs and 400,000 ACEs per system.	
IP	Up to: 1,000,000 IPv4 or 1,000,000 IPv6 routes with 8-GB	4,000,000 IPv4 or 4,000,000 IPv6 routes Multicast: 100,000 routes and 44,000 groups.	ESP20/40:4,000,000 IPv4 or 4,000,000 IPv6 routes Multicast: 100,000 routes and 4,000 groups.	ESP40:4,000,000 IPv4 or 4,000,000 IPv6 routes Multicast: 100,000 routes and 4,000 groups. ESP100/200:4,000,000 IPv4 or 4,000,000 IPv6	ESP40:4,000,000 IPv4 or 4,000,000 IPv6 routes Multicast: 100,000 routes and 4,000 groups. ESP100/200:4,000,000 IPv4 or 4,000,000 IPv6 routes Multicast: 100,000 routes and 44,000 groups.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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	memory 3,500,000 IPv4 or 3,000,000 IPv6 routes with 16-GB memory Multicast: 64,000 routes and 4000 groups			routes Multicast: 100,000 routes and 44,000 groups.	
Security	IPsec: 8,000 tunnels Firewall or NAT: 2,000,000 sessions and 200,000 sessions-per-sec setup rate Carrier-Grade NAT: 4,000,000 sessions.	IPsec: 8000 tunnels Firewall: 6,000,000 sessions and 220,000 sessions-per-sec setup rate NAT: 4,000,000 sessions and 300,000 sessions-per-sec setup rate. Carrier-Grade NAT: 12,000,000 sessions.	ESP20/40: IPsec: 8,000 tunnels Firewall or NAT: 2,000,000 sessions and 200,000 sessions-per-sec setup rate Carrier-Grade NAT: 4,000,000 sessions.	ESP40: IPsec: 8,000 tunnels Firewall or NAT: 2,000,000 sessions and 200,000 sessions-per-sec setup rate Carrier-Grade NAT: 4,000,000 sessions. ESP100/200: IPsec: 8000 tunnels Firewall: 6,000,000 sessions and 220,000 sessions-per-sec setup rate NAT: 4,000,000 sessions and 300,000 sessions-per-sec setup rate. Carrier-Grade NAT: 12,000,000 sessions.	ESP40: IPsec: 8,000 tunnels Firewall or NAT: 2,000,000 sessions and 200,000 sessions-per-sec setup rate Carrier-Grade NAT: 4,000,000 sessions. ESP100/200: IPsec: 8000 tunnels Firewall: 6,000,000 sessions and 220,000 sessions-per-sec setup rate NAT: 4,000,000 sessions and 300,000 sessions-per-sec setup rate. Carrier-Grade NAT: 12,000,000 sessions.
L3VPN	Up to 4,000 VRF instances	8,000 VRF instances	ESP20/40/100/200:8,000 VRF instances	ESP40/100/200:8,000 VRF instances	ESP40/100/200:8,000 VRF instances

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

VPN Services	Perform advanced services such as IP Security (IPsec) encryption, Network Address Translation (NAT), firewall, AppNav, Cisco Application Visibility and Control (AVC), Performance Routing (PfR), and Locator ID Separation Protocol (LISP); they offer diverse feature Layer 2 connectivity options such as Ethernet over MPLS (EoMPLS), Virtual Private LAN Services (VPLS), Overlay Transport Virtualization (OTV), and Virtual Extensible LAN Services (VXLAN) IPsec, GRE + IPsec, VTI, Easy VPN, Enhanced Easy VPN, Dynamic Multipoint VPN, 2547 over DMVPN, Group Encrypted Transport VPN, IPv6 IPsec SVTI				
Unified Border Element	10,000 sessions	64,000 sessions	ESP20/40/100/200: 64,000 sessions	ESP20/40/100/200: 64,000 sessions	ESP20/40/100/200: 64,000 sessions
High-Availability	Software redundancy, IPsec Failover, Nonstop Forwarding (NSF), Stateful Switchover (SSO), and online Insertion and removal (OIR)			Hardware redundancy, IPsec Failover, Nonstop Forwarding (NSF), Stateful Switchover (SSO), In-Service Software Upgrade, and online Insertion and removal (OIR)	
Application Visibility and Control	More than 1000 applications matching, Flexible Pattern Matching, NBAR, Sampled Netflow				
License	Security license				
Warranty	**3 Years Full Warranty.**				

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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VSAT Equipment

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31. VSAT HUB INDOOR UNIT EQUIPMENT:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Compatible with Skylinx HSCU.
2. Half/full duplex.
3. Synchronous data rate minimum 5Mbps.
4. Front panel and remote diagnostic and configuration.
5. Stackable power supply and interfaces.
6. Programmable IF frequency 50MHz- 180MHz.
7. Self test capability.
8. Programmable RF power level.
9. RF fault alarm.
10. Input impedance 75 Ohms.
11. Remotely manageable.
12. Data interface V.24, RS-232, V.35, RJ45 100 Mbps base-T Ethernet port.
13. Multiple protocols.
14. Auto backup power supply.
15. Pre-wired cabinet and rack.
16. **3 years Full Warranty.**

32. VSAT FIXED REMOTE SITE OUTDOOR UNIT:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. The outdoor antenna should be installed on an easy movable and adjustable base.
2. Satellite antenna should be universal standard size and well manufactured.
3. The antenna shall be installed not less than fifteen (15) meters away of the indoor
   equipment.
4. Outdoor units should be a Ku- band up/down converter with high power, weather proofed, integrated fault alarm output. And can support standard satellite technologies such as: SCPC, DAMA, and TDMA.
5. Build fence around the outdoor units if it's installed on the ground.
6. **3 years Full Warranty.**

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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33. VSAT FIXED REMOTE SITE INDOOR UNIT:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Half/full duplex.
2. DCU (Data Channel Unit) data rate 9.6 up to 128 Kbps auto rate, for the remote signaling.
3. HSCU (High Speed Channel Unit) data interface V.24 RS-232 V.35 RS-449, RJ45 100 Mbps base-T Ethernet port. Data rate ranges 32 Kbps up to 2048 Kbps auto rate.
4. Front panel and remote diagnostic and configuration.
5. Stackable power supply and interfaces.
6. Programmable IF frequency 50 MHz -180MHz.
7. Self test capability.
8. Programmable RF power level.
9. RF fault alarm.
10. Input impedance 75 Ohms.
11. Remotely manageable.
12. Encrypted devices.
13. Support multiple protocols..
14. Compatible with 8000 Series HSCU (High Speed Channel Unit) Skylinx NMS from ViaSat.
15. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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34. VSAT FLY AWAY REMOTE SITE OUTDOOR & INDOOR UNITS:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. The antenna should be small and self pointing antenna.
2. Minimal operator actions (setup < 5 min.).
3. The transceiver should be at least 4 watt.
4. Transit case mounted electronics to hold the equipments.
5. Satellite modem with the following specifications:
   - Support V.35 interface.
   - Auto Power 220V 50/60 Hz.
   - Operating Temperature -5C to 50C.
   - Operating Humidity 5 to 95%.
   - Support multiple protocols.
   - Compatible with 8000 HSCU Skylinx from ViaSat.
   - Half/full duplex.
   - Synchronous data rate 9.6 up to E1 auto rate.
   - Programmable IF frequency 50MHz -180MHz.
   - Self test capability.
   - Programmable RF power level.
   - RF fault alarm.
   - Input impedance 75 Ohms.
   - Remotely manageable.
   - Cables which can be extended up to 300 meters.
   - **3 years Full Warranty.**

35. VSAT MOBILE REMOTE TERMINAL COMM. SYSTEM:

Must meet NIC General HW requirements plus the following Minimum of requirements:

This part should include the following:
1. 1.8m motorized Ku-band antenna with auto satellite acquisition.
2. A 4W Ku-band transceiver (in single-thread or redundant configuration).
3. Skylinx equipment (8000 Series Chassis, RSCU, & HSCU).
4. Routers.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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36. VSAT MOBILE POWER SUPPLY SYSTEM:

The power system part should allow operation either On-source AC power or Generator Set power, and will be equipped with Auto Transfer Switch. It should also include suitable uninterrupted power supply system.

1. Operation from AC source or Generator Set power, with automatic switching.

2. A suitable generator set with sufficient capacity to supply power to the entire system including A/C system. Installation of Generator Set within the vehicle should allow for easy access for maintenance purposes.

3. A UPS system with at least 15 min autonomy for VSAT/Routers equipment only.

4. Power distribution panel.

5. A suitable fuel tank.

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Printers

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ **Vendors must comply with instructions (page 6 to 18)**

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37. Personal Laser Printer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Black toner laser printer.
3. Hi-speed USB2.0 port connection.
4. **TBS:** Minimum of Memory **128MB**.
5. Processor is 1200MHz.
6. ARABIC/LATIN Bi-Directional.
7. **TBS: 38** page per minute or higher.
8. Minimum of 1200 dpi resolution Enhancement technology (REt).
9. **A4** and Letter Size Feeder tray with Minimum of 250-sheet capacity.
10. Printer shall accept freely adjustable paper sizes through a manual feed slot.
11. 220 V regulated Power Supply.
12. **3 years Full Warranty**

38. Personal Color Laser Printer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Color laser printer.
3. Hi-speed USB2.0 port connection.
4. **TBS:** Minimum of Memory **128MB DRAM** .
5. Processor is 1200MHz.
6. ARABIC/LATIN Bi-Directional.
7. **TBS: 27** page per minute or higher color and mono printing.
8. Minimum of 600 x 600 dpi resolution.
9. **A4** and Letter Size Feeder tray with Minimum of 250-sheet capacity.
10. Printer shall accept freely adjustable paper sizes through a manual feed slot.
11. **TBS:** 220 V regulated Power Supply.
12. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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39.　　Network Laser Printer (A4):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Black toner laser printer.
3. Hi-Speed USB 2.0 ports (Host and Device).
4. Built-in Gigabit Ethernet 10/100/1000T network port; Hardware Integration Pocket (HIP)
5. **TBS:** (Optional) Mobile printing capability.
6. **TBS:** Minimum of Memory **512MB**.
7. Processor is 1.2 GHz.
8. ARABIC/LATIN Bi-Directional.
9. **TBS: 50** page per minute or higher.
10. Minimum of 1200 x 1200 dpi resolution.
11. **TWO** multi-size feeder trays with Minimum of 500-sheet capacity each.
12. Printer shall accept freely adjustable paper sizes through a manual feed slot.
13. **A4** Paper size
14. 220 V regulated Power Supply.
15. **3 years Full Warranty.**

40.　　Network Color Laser Printer(A4):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Full Color laser printer.
3. Hi-Speed USB 2.0 port; Built-in Fast Ethernet 10/100/1000Base-TX network port.
4. **TBS:** (Optional) Mobile printing capability.
5. **TBS:** Minimum of Memory 1 GB.
6. Processor speed 1.2 GHz
7. ARABIC/LATIN Bi-Directional.
8. **TBS:** 38 page per minute monochrome and color or higher
9. Two Feeder trays with Minimum of 500-sheet capacity.
10. Printer shall also accept freely adjustable paper sizes through a manual feed slot.
11. Produces high quality and continuous tone photo-quality color images.
12. Minimum of 1200 x 1200 dpi
13. A4,Paper size
14. 220 V regulated Power Supply.
15. 3 years Full Warranty.

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)　　على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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41. Network Laser Printer (A3):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. Black toner laser printer.
3. 2 Hi-Speed USB 2.0 Host, Hi-Speed USB 2.0 Device, 2 Internal USB Host.
4. Gigabit Ethernet 10/100/1000T network, Foreign Interface, Hardware Integration Pocket.
1. **TBS:** Minimum of Memory 1GB.
2. Processor speed is 800MHz.
3. ARABIC/LATIN Bi-Directional.
4. Support A4, A3, RA3 paper sizes; A4 black: Up to 55 ppm; Laser technology
5. Feeder trays with Minimum 1100 sheets (two 500-sheet input trays, 100-sheet multi-purpose tray)
6. 100-sheet multipurpose tray 1 supports a wide variety of paper sizes and types
7. Built-in automatic two-sided printing.
8. **3 years Full Warranty.**

42. Network Color Laser Printer(A3):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. Full Color laser printer.
3. Hi-Speed USB 2.0 Printing.
4. Gigabit Ethernet 10/100/1000T network.
5. **TBS:** Minimum of Memory 1.5GB.
6. Processor speed is 800MHz.
7. ARABIC/LATIN Bi-Directional.
8. Support A4, A3 paper sizes; A4black: Up to 45 ppm, color: Up to 45 ppm; Laser technology; ImageREt 4800 technology.
8. Feeder trays with Minimum 1100 sheets (two 500-sheet input trays, 100-sheet multi-purpose tray)
9. 100-sheet multipurpose tray 1 supports a wide variety of paper sizes and types
10. Built-in automatic two-sided printing.
11. **3 years Full Warranty**.

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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43. Color Ink Jet Printer:
Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Full Color Ink Jet printer.
3. Hi-Speed USB 2.0 port
4. User-friendly control panel with LED light display for ink cartridge and network status at a glance
5. **TBS:** Minimum of Memory 128 MB DDR RAM.
6. Processor speed is 500MHz.
7. **TBS:** Built-in Ethernet connectivity
8. **TBS:** (Optional) Built-in wireless 802.11b/g/n networking
9. ARABIC/LATIN Bi-Directional.
10. TBS: 33 page per minute monochrome, 20 page color or higher.
11. A4 and Letter Size Feeder tray with Minimum of 200-sheet capacity.
12. Printer shall also accept freely adjustable paper sizes through a manual feed slot.
13. Produces high quality and continuous tone photo-quality color images.
14. Minimum of 1200x1200 dpi black; Color Best: Up to 4800 x 1200 optimized dpi color
15. 220 V regulated Power Supply.
16. **TBS:** A4, A3 Size paper.
17. **3 years Full Warranty.**

44. Personal Dot Matrix Printer:
Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Bilingual support.
3. **TBS:** 825 CPS printing speed.
4. Min 24 pin print head
5. Number of Copies: 1+5>
6. Continuous Form and Cut Sheet. (Quote separately for cut sheet feeder).
7. Supports User Defined Code Page.
8. Minimum of Three Built in Arabic Fonts.
9. **TBS:** Minimum of 128 K Buffer Memory.
10. 1 Serial and 1 Parallel Ports.
11. Windows Driver to enhance the Printing speeds (Text / Graphics) in Arabic and Latin from Windows application.
12. Automatic Gap Adjustment. (AGA).
13. Automatic Paper Path Selection.
14. Automatic Front Insertion.
15. Can be connected to Ethernet Network through Network card.
16. **TBS:** 220 V regulated Power Supply.
17. **3 years Full Warranty**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18) على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨
المواصفات الفنية القياسية للأجهزة ص ٧٩ من ١٢٨ النسخة: 8_2017

45.   Network Dot Matrix Printer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Bilingual support.
3. **TBS:** Minimum of **1150** CPS printing speed.
4. Min 24 pin print head
5. Number of Copies: >1+6
6. Continuous Form and Cut Sheet. (Quote separately for cut sheet feeder).
7. Supports User Defined Code Page.
8. Minimum of Eight Built in Arabic Fonts.
9. **TBS:** Minimum of 128 K Buffer Memory.
10. 1 Serial and 1 Parallel Ports.
11. Windows Driver to enhance the Printing speeds (Text / Graphics) in Arabic and Latin from Windows application.
12. Automatic Gap Adjustment. (AGA).
13. Automatic Paper Path Selection.
14. Automatic Front Insertion.
15. Minimum of one Fast Ethernet card installed and ready for operation.
16. **TBS:** 220 V regulated Power Supply.
17. **3 years Full Warranty**

46.   High Speed Dot Matrix (Line) Printer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Bilingual support.
3. **TBS:** Minimum of 2000 Lines per minute printing speed.
4. 136 Column print width @ 10 cpi.
5. Number of Copies: >1+6
6. Supports both 7 and 8 bit Arabic codes and multiple code pages.
7. Minimum of eight Built in Arabic Fonts.
8. Supports User Defined Code Page.
9. Uses Flash Rom technology.
10. Minimum of 4 Mega Byte Buffer Memory upgradeable to 20 Meg.
11. Minimum of 1 Serial and 1 Parallel Ports (auto switching).
12. Windows Driver to enhance the Printing speeds (Text / Graphics) in Arabic and Latin from Windows application.
13. Automatic Gap Adjustment. (AGA).
14. Automatic Front Insertion.
15. Minimum of one Fast Ethernet card installed and ready for operation.
16. 220 V regulated Power Supply.
17. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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47.   In-Book Dot-Matrix Form Printer

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Bilingual Arabic / Latin line printer.
3. 24 needles, noise optimized, Bi-directional logic-seeking
4. 90 Column widths @ 10CPI.
5. LCD display for easier printer configuration.
6. Supports 1+4 copies
7. Passbook Upright and Horizontal folds not less than 4 mm (Book thickness when opened)
8. Passbook processing speed: 2.2 seconds or better
9. Automatic Document Alignment
10. High-precision positioning
11. Print Head can be replaced by the customer without any tools
12. Automatic head adjustment for paper thickness.
13. Dynamic font selection:
14. Bold, Italics, Underlining, Elegant print, Superscript, and Subscript.
15. Compatible with the following operating systems:
    - Windows NT, 2000, XP, Vista, Windows 7
    - IBM Mainframes
    - HP mainframes
    - Unix
16. Built-in universal Arabization (7 bit & 8 bit solutions).
17. Support Arabic and Latin code pages including but not limited to
    ASMO 449,ASMO 449+, ASMO 708,ASMO 708+, Al-Arabi, IBM 864, NCR 96,IBM Xbasic.
18. Supports user defined code pages.
19. Many styles of barcodes .
20. Windows Driver to enhance the printing speeds (Text/Graphics) in Arabic and Latin from Windows application.
21. Supports emulation for the following printers: IBM Pro-printer, Epson FX, Epson LQ, ANSI, HP, Olivetti, PR40/PR50/PR2, Unisys, Oki.
22. Serial and Parallel ports
23. Compliance with the following standards:
    UL1950, EN60950, CSA 22.2 No. 950, IEC950, EN 55022-B, EN50082-2, FCC KI.A, Noise complying to SN29067-3 class 2, Mechanics complying with SN29067-2 (2M2)
24. Flash ROM to easily and locally upgrade printer program.
25. Ribbon life: 10 million characters.
26. Rated voltage 120/240 VCA.
27. Weight not more than 9 kg.
28. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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48.   Portable Printer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. Print Technology: Thermal Inkjet.
3. Full Color Ink Jet printer.
4. ARABIC/LATIN Bi-Directional.
5. Print Resolution Black (best): 600 x 600 rendered dpi; Color (best): 4800 x 1200 optimized dpi color .
6. **TBS:** Print Speed Black (draft): 22 ppm; Color (draft): 18 ppm.
7. Compatible Ink Types Dye-based (color); pigment-based (black)
8. Standard Connectivity 1 USB 2.0; 1 Pict Bridge; 1 Bluetooth 2.0 + EDR
9. Network Ready.
10. Wireless Capability.
11. Media Types Supported Paper (inkjet, photo, plain), cards (greeting, index), envelopes, labels, Brochures.
12. Media Sizes Supported A4; A5; A6; B5 (JIS); C6; DL.
13. Paper handling 50-sheet input tray, straight through paper path.
14. Duplex Options: Manual (driver support provided).
15. **TBS:** Standard Memory 64 MB.
16. **TBS:** Processor Speed 220 MHz.
17. lithium-ion battery and Smart AC Adapter.
18. **TBS:** Max Weight: 2.5 Kg.
19. Power 220 V.
20. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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49. Label Printer

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Dot Matrix or Thermal Transfer print mechanism.
3. **TBS:** Minimum of 200-dots-per-inch resolution.
4. Print label width range up to Minimum of 100mm.
5. Label length Maximum no less than 250mm.
6. Minimum of range of total label thickness 0.003" (0.07mm) to 0.0075" (0.18mm)
7. Print Speed Minimum of 6" (152mm) per second
8. **TBS:** Minimum of 256KB SRAM; 512KB Flash
9. Compatible with Windows 7, Windows Vista, Windows XP/NT/2000.
10. Bar Codes/Symbologies
    EAN-8, EAN-13; Standard 2 of 5; Code 39; Code 93; Code 128 with subsets A/B/C and UCC Case Codes; UPC-A, UPC-E; UCC/EAN-128; Interleaved 2 of 5; UPC-A with 2 or 5 digit supplements; Codabar ; PDF-417; Macro PDF-417; Maxi Code; Data Matrix;
11. Field upgradeable to accept new symbologies within its resolution.
12. USB 2.0 Interface.
13. Rugged construction (All metal construction preferred)
14. Small footprint/ for use in locations with low desktop real-estate availability.
15. **TBS:** 220 V regulated Power Supply.
16. **3 years Full Warranty**

50. Receipt Printer

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Dot Matrix or Thermal Transfer print mechanism.
3. **TBS:** Minimum of 200 dpi X 200 dpi resolution.
4. Print width 80mm.
5. Minimum of range of total label thickness 0.06mm to 0.07mm
6. Print Speed Minimum of 200 mm per second
7. Minimum of 4KB/45 byte data buffer
8. Compatible with Windows 8, 7, Windows XP.
9. Bar Codes/Symbologies
   UPC-A, UPC-E, JAN8 (EAN), JAN13 (EAN), CODE 39, CODE 93, CODE 128, ITF, CODABAR
10. Field upgradeable to accept new symbologies within its resolution.
11. USB 2.0 Interface.
12. Small footprint/ for use in locations with low desktop real-estate availability.
13. **TBS:** 220 V regulated Power Supply (with AC adapter if necessary).
14. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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51.   Passport Printer Specifications:

Must meet NIC General HW requirements plus the following Minimum of requirements:

a. Thermal Re-transfer Technology, with color Solid Pigment Ink.

b. 600 DPI; 256 steps color on CMYKUv panels, which will produce 18.6 million colors.

c. Compatible with the latest Crystagram Film Rolls for the Saudi Passports.

d. A color touch screen LCD to provides the operator with an easy to follow raphical interface with dynamic messages, icons and images.

e. 60 seconds or less print speed from inserting to ejecting the book.

f. Build-in CCD Camera for recognizing the pre-printed booklet number.

g. USB and Ethernet interface.

h. Power Source: 220V AC, 50/60 Hz.

i. Equipped with Fingerprint, PIN and Smart Card Authentication methods.

j. Easy consumables replacement in Cassette Shape.

k. Produce ICAO Compliant Passports.

l. Accept printing from NIC system without any changes on the current process.

m. Easily accommodates passports of different sizes.

n. Weight and dimensions suitable for desktop usage and can be handled by few individuals without mechanical assistance.

o. Compliance with RoHS, FCC and CE.

p. Reject Stacker with physical lock

q. Book Feeder Specifications(Toppan eP600):

   a) Can accommodate at least 50 passports and up to 100 passports depend on the passport thickness.

   b) Compatible and integrated with Toppan eP600 Printer.

   c) Power will be supplied from the eP600 Printer without the need of external power source.

   d) Equipped with physical lock for security purposes.

   e) Book feeder cassette to easy load the passports.

   f) LED indicators for the book feeder status.

r. 3 years Full Warranty.

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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52. Card Printers

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product** .
2. Dual-Sided Printing Standard
3. Print head: Lifetime
4. Print Resolution 300 DPI
5. Single-side YMC Print Speed Up to 1200 cards per 8-hour shift/24 seconds per card (YMC with transfer)*
6. Single-side YMCK Print Speed Up to 992 cards per 8-hour shift/29 seconds per card (YMCK with transfer)*
7. Dual-side YMCKK Print Speed Up to 720 cards per 8-hour shift/40 seconds per card (YMCKK with transfer)*
8. Multiple Print Mode Selection
9. Simultaneous Printing / Encoding
10. Memory 32MB RAM
11. Printer Password Protection Workbench and display
12. Locking Card Input Hopper
13. Locking Card Output Hopper
14. Lockable Printer and Laminator Housing
15. Security Resin Erase Standard
16. Network Data Encryption
17. Interface USB 2.0 & Ethernet standard
18. One-Wire USB Encoding Standard
19. Internal Ethernet Server Standard
20. Supported Software Drivers Windows® XP / Server 2003 / Vista (32 & 64 bit) / Server 2008 R2 (64 bit) / 7 / 8
21. (32 & 64 bit); Mac OS X v10.4/v10.5; and Linux***
22. Power Input 100-240 VAC, 3.5 A MAX, 50 Hz - 60 Hz
23. Agency Approvals UL, CE, IC, FCC Class-A, CCC, BSMI, KC, MIC, S-Mark
24. Touch Screen Display 3.2" display for status and help information
25. Dual-Cooling Fans
26. Replaceable Fan Filter
27. Card Input Capacity (2 Hoppers) 400 cards (.030" / .762mm)
28. Dual Input Hopper Capability Yes
29. Card Output Capacity (1 Hopper) 200 cards (.030" / .762mm)
30. Card Thickness .030" (30 mil) to .050" (50 mil) / .762mm to 1.27mm
31. Card Exception Feed
32. Card Cleaning Station Two
33. Cartridge Loadable Ribbons
34. Fluorescing/UV Ribbon
35. Full-Color – YMC (maximum images per roll) 750
36. Full-Color – YMCK (maximum images per roll) 500
37. Full-Color – YMCKK (maximum images per roll) 500
38. Full-Color – Half-Panel YMCK (maximum images per roll) 1000
39. HDP Film (maximum images per roll) 1500

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| على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ | **Vendors must comply with instructions (page 6 to 18)** |

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40. Dimensions 15.5" H x 28.2" W x 14.0" D / 394mmH x 716mmW x 356mmD
41. Weight (printer only) Dual-sided only: 61 lbs / 27.7 kg
42. Heavy Duty Metal Enclosure
43. Fully Accessible Card Path
44. Dual-Sided Simultaneous Lamination
45. Andon Production Status Light
46. ISO Card Flattener
47. Laser Engraving Q4, 2012
48. ISO Magnetic Encoding
49. Contact Smart Card Encoding
50. Contactless Smart Card Encoding
51. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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53.   Color Ink Jet Plotter:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Full Color Inkjet plotter or Thermal Inkjet..
3. **TBS:** Minimum of Memory **96MB**.
4. **TBS:** Minimum of H.D.D of **160GB**
5. Minimum of 1200x600 dpi resolution. Up to 2400 x 1200 optimized dpi
6. ARABIC/LATIN Bi-Directional.
7. Parallel or Hi-speed USB 2.0 connection.
8. Fast Print Speed in Color images: 40 m2/hr (440 ft²/hr) on coated media, and Best Quality printing Speed: 3 m2/hr (33 ft²/hr) on glossy media.
9. Paper size 11" up to 44" in rolls 150 ft.
10. It must be able to print on any paper (include but not limited to: Vellum, coated papers, films, Heavy coated, Satin Poster, Canvas...)
11. It must have a Single sheet feeder, roll feeder, automatic cutter, and printer stand with at least two roll holders.
12. Printer shall also accept freely adjustable paper sizes through a manual feed slot. Sheet feed, roll feed, automatic cutter
13. Accepts Four-color ink cartridges (Cyan, magenta, black, yellow).
14. Network ready "Fast Ethernet (100Base-T)",, and can be controlled by internal print server.
15. Produces high quality and continuous tone photo-quality color images.
16. **TBS: Paper size 60" in roll 300 ft.**
17. **TBS: Two roll feeder.**
18. **TBS: Accepts Six-color ink cartridges.**
19. **TBS:** It must be have a take-up reel function.
20. **TBS:** It must have a Minimum of 12"screen to monitor the printing operation.
21. 220 V regulated Power Supply (with AC adapter if necessary).
22. **3 years Full Warranty**

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TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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54.   Small GIS Format Plotter:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Print technology: Thermal Inkjet dye-based system
3. **printing Speed: 3 m2/hr (33 ft²/hr) on glossy media.**
4. Minimum of 1200 x 600 dpi Print quality, Up to 2400 x 1200 optimized dpi.
5. Media Handling: Roll feed, Sheet feed, automatic cutter.
6. Supports optional paper handling: Duplex Print Options (usually provided by third parties.)
7. Minimum of Standard Media Sizes:11" up to 42" wide sheets rolls. With : ISO, JIS, ARCH, 152 cm printing capability
8. Capable of Print Length up to 300 feet.
9. Custom Media Sizes: 140 x 140 to 1067 x 1897 mm sheets, 458 to 1067 mm rolls.
10. Required Media Type Support: compatible with Dye ink systems; color vinyl; heavyweight coated paper; productivity photo paper; productivity photo semi-gloss paper; studio canvas paper; standard weight plotting paper.
11. **256** MB Minimum of memory requirement.
12. Standard Printer Language Support: TIFF, JPEG, CALS/G4, GL/2, RTL. HP-GL/2, HP-RTL, HP PCL 3 GUI.
13. Standard Connectivity requirement: Jetdirect 620n 10/100 Base-TX print server, supporting TCP/IP (including LPR and IPP), AppleTalk, IPX/SPX protocols, Centronics parallel port, IEEE 1284-compliant Hi-Speed USB 2.0 certified, EIO Jetdirect accessory slot.
14. Print Drivers: Microsoft® Windows: NT 4.0, 2000, Me, XP, Vista, Windows 7, … with Plotter Drivers, UNIX®, LINUX: with Plotter embedded web server file submitter, AutoCAD: 2000, 2002, R 14 and higher for Windows.
15. Fast Print Speed in Color images: 40 m2/hr (440 ft²/hr) on coated media, and Best Quality **TBS: take-up reel.**
16. 220 V regulated Power Supply (with AC adapter if necessary).
17. **Warranty: Three-year warranty with free, on-site, next-business-day service. Service agreements must allow for warranty period to be extended up to 5 years.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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| **Vendors must comply with instructions (page 6 to 18)** | على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ |

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55. Large GIS Format Plotter:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Print technology: Thermal Inkjet dye based system
3. **Print Speed: Fast Mode – 60 m²/hr hour Minimum of ; Photo Speed – 8 m²/hr Minimum.**
4. Minimum of **256** MB memory requirement.
5. Minimum of **40** GB HDD.
6. Minimum of 1200 x 600 dpi Print quality Up to 2400 x 1200 optimized dpi or better, for best plotting.
7. Media Handling: Roll feed, sheet feed, automatic cutter, take-up reel.
8. Paper handling: Duplex Print Options – usually provided by third parties.
9. Standard Media Sizes: ISO, JIS, ARCH, 152 cm printing capability. 8.3- to 60-in wide sheets; 24-, 36-, 42-, 60-in wide rolls.
10. Capable of Print Length up to 300 feet recommended.
11. Custom Media Sizes: 210 x 559 mm to 914 x 1600 mm
12. Required Media Type Support: compatible with Dye ink systems; colour vinyl; heavyweight coated paper; productivity photo paper; productivity photo semi-gloss paper; studio canvas paper; standard weight plotting paper.
13. Standard Printer Language Support: TIFF, JPEG, CALS/G4, GL/2, RTL.
14. Standard Connectivity requirement: Jetdirect 620n 10/100 Base-TX print server, supporting TCP/IP (including LPR and IPP), AppleTalk, IPX/SPX protocols, Centronics parallel port, IEEE 1284-compliant.
15. Print Drivers: Microsoft® Windows: NT 4.0, 2000, Me, XP, Vista, Windows 7, ... with Plotter Drivers, UNIX®, LINUX: with Plotter embedded webserver file submitter, AutoCAD: 2000, 2002, R 14 and higher for Windows.
16. 220 V regulated Power Supply (with AC adapter if necessary).
17. **Warranty: Three-year warranty with free, on-site, next-business-day service. Service agreements must allow for warranty period to be extended up to 5 years.**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٨٩ من ١٢٨   النسخة: 8_2017

Imaging Devices

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩٠ من ١٢٨   النسخة: 8_2017

56. Color Photo Image Scanner (Personal):

Must meet NIC General HW requirements plus the following Minimum of requirements:

22. **Must be a brand name product**
23. Minimum of   A4 size media
24. Minimum of 2400 X 2400 dpi resolution
25. *48-bit color Single Pass Scan Mode*
26. 3 line Color coated CCD
27. LED light source
28. Warm up time maximum 30 seconds
29. USB Interface
30. Speed: Gray: 5 ms/line or higher
             Color: 15 ms/line or higher
31. TWAIN compliant.
32. **TBS:** Compliant and certified for IAFIS and NIST Image standards.
33. 220 V regulated Power Supply (with AC adapter if necessary).
34. **3 years Full Warranty**

57. Auto-Feed Photo Image Scanner:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Flatbed with ADF (automatic document feeder) w/Minimum of 50 Sheets Capacity.
3. Media size A6 to A3
4. Minimum of scan speed of 10 PPM at 300 dpi Grayscale
5. Minimum of 600 DPI resolution capability
6. 32-bit color capability
7. USB Interface
8. TWAIN compliant.
9. **TBS:** Compliant and certified for IAFIS and NIST Image standards.
10. 220 V regulated Power Supply (with AC adapter if necessary).
11. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩١ من ١٢٨   النسخة: 8_2017

58.   Auto-Feed Document Archiving Image Scanner:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Flatbed with ADF (automatic document feeder) w/Minimum of 50 Sheets Capacity.
3. Media size A6 to A3
4. Minimum of scan speed of 20 PPM at 300 dpi Grayscale
5. Minimum of 600 DPI resolution capability
6. 32-bit color capability
7. USB Interface
8. TWAIN compliant.
9. **TBS:** Compatible with the File-Net Document imaging system. (for file-Net environment).
10. **TBS:** Compliant and certified for IAFIS and NIST Image standards.
11. 220 V regulated Power Supply (with AC adapter if necessary).
12. **3 years Full Warranty**

59.   Medium Speed Document Archiving Image Scanner:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Flatbed with ADF (automatic document feeder) w/Minimum of 50 Sheets Capacity.
3. Media Size A7 to A4, 16.7 million color & 256 shades of gray scale Image Types
4. Scan Speed 40 PPM at 300 dpi Grayscale & 20 PPM Color
5. Resolution up to 600 x 1200 dpi (1%increments)
6. Interface Adapter card , cable, and all necessary parts
7. All required consumable during warrantee period
8. TWAIN Compliant.
9. Must be delivered with appropriate Adaptec SCSI card such as (AHA-2930, AHA-2940, AHA-29160,…).
10. **TBS:** Kofax interface compliant supporting at least the following "Adrenaline" cards: 450, 650, 650i, 850 and 1700 families. **NOTE: If the Scanner is used for Archiving then the Kofax Interface is added to the specification. In case the scanner is used for Administration Communication then the Kofax Interface is removed from specifications.**
11. Compatible with the File-Net Document imaging system.
12. **TBS:** Compliant and certified for IAFIS and NIST Image standards.
13. 220 V regulated Power Supply (with AC adapter if necessary).
14. **3 years Full Warranty**

TBS: To Be Specified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩٢ من ١٢٨   النسخة: 8_2017

60.   High Speed Document Archiving Image Scanner:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Mono Duplex ADF (automatic document feeder) w/Minimum of 500 sheet Capacity.
3. Media A7 to A3 or double letter, with dynamic paper separation
4. Scan Speed 90PPM / 180 IPM, Dual I/F (Video/SCSI)
5. 600DPI Optical resolution
6. 32MB standard memory
7. Image Processing features (IPC 3D) pre-installed
8. White Xenon fast start/long life lamp, Dropout color (Blue / Green / Red)
9. Interface Adapter card, cable, and all necessary parts
10. All required consumable during warrantee period
11. TWAIN compliant.
12. Must be delivered with appropriate Adaptec SCSI card such as (AHA-2930, AHA-2940, AHA-29160,…).
13. **TBS:** Kofax interface compliant supporting at least the following "Adrenaline" cards: 450, 650, 650i, 850 and 1700 families. **NOTE: If the Scanner is used for Archiving then the Kofax Interface is added to the specification. In case the scanner is used for Administration Communication then the Kofax Interface is removed from specifications.**
14. Compatible with the File-Net Document imaging system.
15. **TBS:** Compliant and certified for IAFIS and NIST Image standards.
16. 220 V regulated Power Supply (with AC adapter if necessary).
17. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩٣ من ١٢٨   النسخة: 8_2017

61.   Digital ID Camera:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Resolution capable of producing photos at least 18 Mega pixels.
3. USB connection to PC.
4. Flash to replicate natural daylight.
5. No moving parts
6. Auto focus (9 AF points(f/5.6) cross type at center) , Auto-iris, Auto white balance, and Auto exposure.
7. Full color spectrum. 24 bit color Minimum of .
8. Stand and accessories for fast and easy photography by unskilled personnel.
9. Video capability to allow user to see live subject on PC monitor and capture still picture at will.
10. Stand alone still picture mode.
11. Includes all necessary drivers and SDK to accomplish PC capture of pictures.
12. TWAIN compliant with drivers for Windows XP/7/8.
13. PC Powered connection or 230/400 V DC adapter. Cameras, which are fully battery dependant, are NOT acceptable.
14. Bidder MUST identify and quote for any consumables necessary for proper operation of camera, including, but not limited to specialized cleaning material.
15. Support EOS system.
16. **3 years Full Warranty**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩٤ من ١٢٨   النسخة: 8_2017

62.   Iris Camera:

Must meet NIC General HW requirements plus the following minimum requirements:

1. Must be a brand name product
2. Operating Temperature: 0°C - 45°C
3. Humidity: 0% to 90%
4. Operating Range: 26cm - 36cm
5. Rotation Angle: +35° /-25°
6. Interface: TCP/IP
7. LED Indication
8. Capture two eyes at the same time
9. SDK that supports Java
10. False acceptance rate of 0.000009 or less
11. Automatic detection of eyes
12. Networking LAN connectivity: 10/100BASE-T Ethernet
13. Internal Components: 16x Zoom B/W CCD Camera, 2 IR LED
14. Power Input: 12VDC @ 2.5A MAX, +/- 10%
15. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ٩٥ من ١٢٨   النسخة: 8_2017

63.   Bar Code Reader:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Laser sensor.
3. Reads all standard 1-D barcodes including but not limited to:
   UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13, Code 39, Code 39 Full ASCII, Trioptic Code 39, Code 93, UCC/EAN, Code 128, Codabar, I2of5, D2of5.
4. Must read barcodes with any rate of compression within the specified standard.
5. Easy firmware upgrade in the field.
6. Small and light weight.
7. Easy to use
8. Trigger-less operation
9. Must have a fast decode capability (less than 2 seconds).
10. Must have a wide read range of at least 2 inches to 13 inches.
11. Wide angle reading. Field of View at least 32° horizontal / 24° vertical.
12. Focal Point : High Density 6.4cm from nose of scanner Read in very dim lighting conditions.
13. High resolution Fuzzy Logic capability to enable reading of slightly damaged barcodes. Strong ability to recognize slightly soiled, skewed, or otherwise damaged bar codes.
14. Rugged design.
15. IEC529 rating IP53DW (resistant).
16. Withstands multiple five-foot (152cm) drops onto concrete; over 100 drops to a countertop.
17. Sealed and protected from windblown dust and rain.
18. **TBS:** USB or keyboard wedge connection.
19. **TBS:** Handheld Gun Type or Omni Directional Presentation scanner with on-counter mount
20. **3 years Full Warranty**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.
TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض
Vendors must comply with instructions (page 6 to 18) على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨
المواصفات الفنية القياسية للأجهزة   ص ٩٦ من ١٢٨   النسخة: 8_2017

64. '2-D' Bar Code Reader:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Laser sensor.
3. Reads all standard 1-D barcodes including but not limited to:
   UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13, Code 39, Code 39 Full ASCII, Trioptic Code 39, Code 93, UCC/EAN, Code 128, Codabar, D2of5.
4. Reads all standard 2-D barcodes including at least: PDF417 and DataMatrix.
5. Must read barcodes with Minimum of 50% rate of compression within the specified standard.
6. Easy firmware upgrade in the field.
7. Must have a visible laser aiming pattern.
8. Handheld Gun Type with on-counter mount
9. Small and light weight.
10. Must be easy to aim: Point-and-shoot scanning.
11. Trigger-less operation
12. Must have a fast decode capability (less than 2 seconds for 1K of data).
13. Must have a wide read range of at least contact 3 inches to 13 inches.
14. Wide angle reading. Field of View at least 32° horizontal / 24° vertical for 1-D barcode, half the range for 2-D barcode
15. Focal Point : High Density 6.4cm from nose of scanner Read in very dim lighting conditions.
16. High resolution Fuzzy Logic capability to enable reading of damaged barcodes. Strong ability to recognize slightly soiled, skewed, or otherwise damaged bar codes.
17. Rugged design.
18. IEC529 rating IP53DW (resistant).
19. Withstands multiple five-foot (152cm) drops onto concrete; over 100 drops to a countertop.
20. Sealed and protected from windblown dust and rain.
21. **TBS: USB or keyboard wedge connection.**
22. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

المواصفات الفنية القياسية للأجهزة   ص ٩٧ من ١٢٨   النسخة: 8_2017

65.   Single-Fingerprint Live-Scan

Must meet NIC General HW requirements plus the following Minimum of requirements:

- **Must be a brand name product**
- **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**

Platen Active Area	(H x V) 1.5 x 1.2 in., 38.1 x 30.5 mm (Designed for one or two-finger slaps and Rolls)
Scan Resolution	(H x V) 683 x 1074 pixels/in., 269 x 423 pixels/cm Almost 3 times the pixels compared to a conventional 500 ppi scanner with the same field of view.
Scan Depth	8 bits/pixel or 256 gray levels
Output Image Resolution	(H x V) 500 x 500 pixels/in., 197 pixels/cm.
Capture Depth	8 bits/pixel
Linearity/Signal-to-Noise/CTF / Scanned gray levels	Meets or exceeds FBI PIV specifications
Geometric Distortion	Exceeds FBI IQS PIV specification without calibration
Quick Capture Platen	Rugged, image enhancing platen coating supports quick capture of dry fingers. Field replaceable if damaged
Illumination	Monochromatic long-life LED
Clean Image View™	Powerful noise management technology ensures clear imaging of ridge detail
Computer Interface	USB 2.0
Power Requirements	USB powered (less than 2.5 watts)
Operating Environment (nominal)	Ambient temperature 40 -104o F (5 -40o C) Relative humidity 10-90% non-condensing Altitude 0 – 7500ft (2460 m) AMSL
Logical Scanner/Host Interface	SDK includes application program interface and device drivers for Window 7, & Windows 10 operating system.
Certifications	PIV Certified, RoHS and CE compliant
Warranty	**3 years Full Warranty.**

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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66.   Standard Ten Finger Print Capture Scanner

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Meet FBI /IAFIS Image Quality Specification EFTS Appendix F (CJIS-RS0010).
3. NIST/AFIS interface
4. **TBS**: Forensic-quality (SLAP only) OR (SLAP & ROLLS) fingerprints
5. Quality check with visual and audible alerts
6. Automatic fingerprint sequencing
7. Automatic duplicate print checking
8. **TBS:** Automatic Capturing without operator action (SLAP only) OR (SLAP & ROLLS).
9. Water and dust protected, rugged case.
10. Filter and reject residuals ghost fingerprint images.
11. Scanner Resolution Enhanced Definition 500 ppi image capture output, with square pixels
12. Scanner Dynamic Range True 8 bits/pixel = 256 gray levels
13. Interface : USB 2.0 Org Certified
14. Power Source: Must obtain form USB (Single point Interface for data and Power)
15. Minimum Area for Image Capture :3.2" * 3.0".
16. Operating Temperature: 0-50 Degree C.
17. Humidity Range: 10-90%
18. Compliance with IAFIS and NIST image standard
19. Additional standard compliance.
20. Support MS windows 32,64 bits.
21. Sensor Type: Optical.
22. **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**
23. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS : تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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67.   Enhance Ten Finger Print Capture Scanner

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product
2. Meet FBI /IAFIS Image Quality Specification EFTS Appendix F (CJIS RS0010).
3. NIST/AFIS interface
4. Forensic quality (flat & Rolls) fingerprints
5. Quality check with visual and audible alerts
6. Automatic fingerprint sequencing
7. Automatic duplicate print checking
8. Auto Capture, Flex Flats, FlexRolls, wet and dry finger image capture without pretreatment of hands or device recalibration
9. Intelligent capture features ensure quality images
10. Water and dust protected, rugged case.
11. Filter and reject residuals ghost fingerprint images.
12. Scanner Resolution Enhanced Definition 500 ppi image capture output, with square pixels
13. Scanner Dynamic Range True 8 bits/pixel = 256 gray levels
14. SDK : L Scan® Essentials 7.0 or later; LScan® Master
15. Interface : USB 2.0 Org Certified
16. Power Source: Must obtain form USB (Single point Interface for data and Power)
17. Minimum Area for Image Capture : 3.2" x 3.3" (8.13 cm x 8.38 cm)
18. Operating Temperature: 0-50 Degree C.
19. Humidity Range: 10-90%
20. rugged case, IP 54
21. Case :Rugged Case: IP 54
22. Compliance with IAFIS and NIST image standard
23. Additional standard compliance.
24. Support MS windows 32,64 bits.
25. Sensor Type: Optical.
26. **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**
27. **3 years Full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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68.   Palm Print Live Scan Device

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Image Quality-Meets FBI IQS IAFIS Image Quality Specification Appendix F
3. Optical Scanner Interface - FireWireA IEEE 1394, OHCI compliant
4. Optical Scanner Dimensions - Deck W: 12.5in (32cm); H: 6.25in (16cm); D: 14in (35.5cm)
5. Operating Environment - Ambient temp: 40°– 95° F (5°– 35° C). Relative Humidity: 20%–80% non-condensing
6. Data Content - Demographics (customizable), fingerprints and photo image transmission in compliance with FBI's EFTS in ANSI/NIST-CSL 1-1993 specified format
7. Data Protocols - SMTP / FTP / NFS / TCP/IP sockets / VPN
8. Active Imaging Dimensions - Roll/Slap Platen 3.2in x 2.0in (81mm x 51mm)
9. Rolled Print Size - Image compliant with FBI standard at 1.6in X 1.5in (41mm x 38mm)
10. Slap Image Size - 3.2in x 2.0in (81mm x 51mm)
11. Optical Resolution - Enhanced Definition 500 ppi image capture output, with square pixels
12. Dynamic Range - Greater than 8 bit, yielding over 256 gray scale depth
13. **TBS: Additional standard compliance.**
14. **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**
15. **3 years Full Warranty**

TBS: To Be Specified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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69. Fingerprint Card Scanner

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Scanner type Flatbed
3. Scanning area   8.5 x 14 inches
4. Resolution - Hardware = 4800 x 4800 dpi; Optical = 4800 dpi; Enhanced = up to 999,999 enhanced dpi (Maximum dpi at which you can scan is limited by available computer memory, disk space and other system factors.)
5. Color depth - 48-bit, Gray scale 256
6. Scan input modes - Front-panel scan, copy, transparent materials adapter (TMA)
7. Preview speed   4 seconds
8. Zooming - 10 to 2000% in 1% increments
9. Interface - 1 USB 2.0, optional SCSI module and kit available
10. Recommended operating environment Temperature = 50 to 95 F (10 to 35 C); Humidity range = 15 to 85% RH
11. File formats supported - BMP, TIFF, GIF, PDF, HTML, JPEG, FlashPix (FPX), TIFF compressed, PCX, RTF, TXT, and PNG
12. Power supply   Universal AC adapter = 100-240 VAC (50/60 Hz) input; 32Vdc, 2.0 amp output.
13. **TBS: Additional standard compliance**
14. **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**
15. **3 years Full Warranty**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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70.   Latent Fingerprint Scanners

Latent Scanners are high resolution Digital cameras designed to capture latent fingerprints from a crime scene these scanners must meet the following Minimum of requirements in addition to NIC General HW requirements:

1. **Must be a brand name product**
2. Resolution 1008(H) X 1018 (V) pixels.
3. Reflection reading source direct current light halogen spot light with adjustable illumination and interchangeable color filters.
4. Transmitting reading source direct current light halogen spot light filter with adjustable illumination.
5. Scanner table size 30 cm X 30 cm.
6. Scanner magnification X1 / X5.
7. Scan accuracy 50 dots / mm.
8. Scanned object latent fingerprint (X1).
9. Scan dimension 25.4 X 25.4 mm
10. Scan area adjustment static object, hand operator.
11. Illumination distribution over 90%.
12. 220 V regulated Power Supply (with AC adapter if necessary).
13. **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any biometrics device otherwise.**

3 years Full Warranty

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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Storage Devices

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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71. SMALL\MEDIUM STORAGE AREA NETWORK (SAN):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product .**
2. Storage system with at least **100TB** (using SAS 15K drives) raw disk capacity, upgradable to more than **1.5PB** in a single SAN Configuration.
3. Disaster Recovery support including all required software and hardware. DR should include Replicate volumes to remote sites while leveraging existing IP network infrastructure
4. At least **128GB** cache for each Storage Controller upgradable to 2TB Cache.
5. Storage Must be based on a virtualized modular storage architecture
6. Solution must be a high-performing unified storage platform that is simple, efficient, optimized for virtual applications, and characterized by the highest levels of protection, compliance, and ease of management.
7. Solution must be designed to deliver Five 9s availability.
8. Solution must ensure data integrity is maintained at all times.
9. Solution must guarantee synchronous writes are committed to disk prior to confirming the write to the client.
10. Solution must provide rapid restoration of data following any power loss.
11. Solution should implement a no Single Point Of Failure (SPOF) architecture.
12. Solution must provide automatic monitoring of disk drive health and initiate a proactive background drive rebuild on failing drives.
13. Solution must deliver consistent predictable steady state performance at scale.
14. Solution must keep write cache persistent during fault conditions to prevent data loss.
15. Solution must be able to support high-capacity disk drives.
16. Solution must be able to support Flash Drives to maximize performance with minimum foot print and power consumption.
17. Solution must use Climate Savers compliant power supplies and be Energy Star compliant.
18. Solution must maximize storage capacity usage.
19. Solution must provide a mechanism to efficiently provide many point-in-time views of any data object.
20. Solution must provide versatile storage provisioning features.
21. Solution must optimize both performance and total cost of ownership.
22. Solution must have file-migration API to enable information lifecycle management via transparent, automated, policy-based file tiering.
23. Solution must have thin provisioning to allow physical allocation of just the storage that is needed within a defined virtual file system or LUN.
24. Solution must support massive growth, providing maximum scaling capability and investment protection.
25. Solution must be able to scale well over 1 Petabyte to meet archiving and B2D requirements in a single system.
26. Solution must be able to independently scale capacity and performance or to assign blades so as to isolate specific business units or protocols.
27. Solution must support 2nd generation SAS 6Gb/s drive connectivity and must be able to support all on-line data storage tiers in order to maximize both system performance and capacity scalability.
28. Solution must be able to provide additional connectivity to meet existing or future needs for front end port counts and future technologies.
29. Solution must be able to support high density drive configuration options for reduced storage footprint.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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30. Solution must support integrated Flash Drives.
31. Solution must be able to absorb spikes in both read and write workloads by providing an extended cache style solution that must also avoid re-warming the cache on failover.
32. Solution must provide linear performance and capacity scalability.
33. Solution must provide high performance for both transactional as well as sequential workloads.
34. Solution must isolate operational processes to optimize performance.
35. Solution architecture should not introduce unnecessary bottlenecks and should provide flexibility to tune the environment.
36. Solution should provide a hybrid option that can deliver NAS style data sharing at SAN delivery speeds for Linux and Windows clients.
37. Solution must be able to monitor and control performance of mission critical applications.
38. Solution must provide Native Fibre Channel FCoE and 10GbE connectivity.
39. Solution must allow independent protocol scaling.
40. Solution must provide advanced connectivity for data availability.
41. Solution must be future connectivity ready.
42. Solution must be able to easily re-assign data access to file systems between file nodes.
43. Solution should be available as an add-on to an existing enterprise Fibre Channel array.
44. Solution should support configuration of logical file server instances.
45. Solution should natively support NAS, ISCSI, Fibre Channel, and pNFS.
46. Solution should integrate with 3rd party File management tools such as quota management and enterprise search.
47. Solution must provide flexible multi-protocol locking.
48. Solution must allow separation of client and administrative access.
49. Solution must provide Inline Name Space.
50. Solution must provide multiple levels of access control including role-based security and auditing capability.
51. Solution must provide data encryption support for high security block data.
52. Solution must provide an integrated file based Anti-Virus offering that leverages best of breed A-V technologies.
53. Solution must provide active system management and user-directed control of system resources.
54. Solution must allow separation of file-based client and administrative access.
55. Solution must provide management control of SNMP, email, and phone home notification.
56. Solution must come standard with a single point of management for command line and graphical user interface as well as providing for third party management integration.
57. Solution must be able to discover and monitor virtual machines.
58. Solution must provide value added VMware integration.
59. Solution should seamlessly integrate to a Microsoft infrastructure.
60. Solution must provide facilities to resolve performance issues in real time.
61. Solution should provide automated and optimized disk configurations.
62. Solution should provide for ease of managing a tiered storage solution.
63. Solution should provide flexible RAID configuration options.
64. Solution should provide separation of RAID functionality from IP data management.
65. Solution should provide Snapshot functionality able to scale and support advanced use cases as well as provide a protected restore function and delete out of order.
66. Solution replication should support advanced replication topologies.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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67. Solution replication should be configured via business rules for Recovery Point Objectives and Quality of Service.
68. Solution should provide fine grained replication for improved bandwidth efficiency.
69. Solution must seamlessly integrate snap and replication to a VMware data protection infrastructure.
70. Solution should deliver a mixture of flexible backup options
71. **3 years Full Warranty**
72. **3 years 24x7 Mission Critical onsite support warranty** upgrade for Hardware and OS with availability of Toll free number directly with original manufacturer for raising service tickets.
73. Availability of Service Delivery Manager from manufacturer

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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72.   HIGH END STORAGE AREA NETWORK (SAN):

Must meet NIC General HW requirements plus the following Minimum of requirements:

1   **Must be a brand name product .**
2   Storage system with at least **200TB RAW capacity** upgradable to 4PB Raw Capacity. Offered Array shall be scalable to at-least Minimum of 3000 Drives.
3   Enterprise-class reliability, availability, and serviceability with High-end architecture, multiple storage controllers to allow for linear/near- linear scalability of performance and capacity and for fault tolerant operation
4   Global Cache across all controllers offered and potential expansion
5   All of the storage solution components shall be 100 % redundant with NSPOF (no single point of failure) providing 6x 9's (99.9999 %) availability
6   Should have a Minimum of 2TB mirrored cache ,Solution cache should scale up to 16TB; this must be native controller cache without the use of SSD drives or Flash cards
7   Solution should support different connectivity options (FC, iSCSI, FCOE, CIFS, NFS)
8   Solution should support 8, 16 Gb/s Fiber Channel and 10 Gb FCoE, 1 Gb or 10 Gb iSCSI/NAS host connectivity
9   Solution should support to send Data directly to Backup storage system LAN-free through SAN without any kind of host intervention
10 Solution should support Data at Rest encryption.
11 Solution should support Compression.
12 Solution must deliver ease of provisioning for specific service level objectives
13 The solution should enable administrators to provision storage for applications based on a pre-defined Storage Service Catalogue with clear performance and protection Service Level.
14 Storage service levels should be tightly integrated with Auto-Tiering Software to optimize agility and solution performance across all drive types in the solution.
15 Solution should support predictive performance for each application before commit provisioning
16 Solution should support showing both database and storage information in a single view with metrics such as IOPS, MB/s and response time so admin team can quickly identify if there is any issue in the storage that might impact the DB or whether there is a DB issue that has nothing to do with the storage
17 The failure of a storage controller/storage server should not result in losing more than 25% of system memory and/or processing power.
18 Solution must be based on a storage specific operating system/microcode rather than general-purpose operating system (e.g. Windows/Linux/Unix). Solution must utilize internal CPU and resources to manage tiering algorithms and scheduling.
19 The solution should support active/active controllers (each LUN should be available to any controller/any HBA)
20 Host to storage load balancing and high availability must be integrated
21 Solution must support high density racks with maximum number of drives
22 Provide mirroring of Reads in cache to keep the performance at 100 % during NDU or Cache board failure / replacements.
23 In the event of site power total failure (short or prolonged) storage solution should de-stage cache to disk to protect the data in the memory
24 Must provide guaranteed protection from silent data corruption scenarios when using all disk drive types
25 Must support "end-to-end data integrity from front-end to disk drives meeting or exceeding T10-DIF standard

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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26 Fully integrated with VMware vCenter, vStorage APIs for Array Integration (VAAI), vStorage APIs for Storage Awareness (VASA) and Microsoft System Center and ODX

27 Storage solution should provide end to end visibility between the storage volume and the virtual machine. This visibility can be through the storage management software or using VMware vCenter.

28 Storage solution should provide a lot of functionalities that are tightly integrated with the hypervisor features like auto-provisioning, QoS, Automated Storage Tiering, thin provisioning.

29 Storage solution must have secured maintenance activities on the storage system that could be secured with two-factor authentication

30 Must have Automated Storage Tiering Capability. Which will make the data mobility across different storage tiers and different raid levels happens automatically and transparently to the application. This can be achieved by setting policies based on performance statistics and the system will determines the LUN or the portions of the LUN (sub LUN) that the policy applies on it and move it to another tier according the policy. The Solution must support up to four storage tiers within a single system

31 Live Migration for block and file data leveraging the intelligence of the solution itself, affording non-disruptive migration solution between storage systems currently deployed that does not require "insertion" or addition of new hardware or software to the organization's SAN or hosts

32 Solution must support bi-directional replication as well as many-to-one and one-to-many replication

33 Solution must Support Mode change of replication Sync/Async without resynchronizing The data

34 Solution must support tier awareness from main site and DR site

35 The solution must support NAS access providing CIFS/NFS file access

36 Must have storage management software that is built to manage the complexity of growing, heavily virtualized storage environments

37 Must have storage management software that is able to view performance trends across the data path and identify hosts competing for resources.

38 Must have storage management software that has the ability to correlate application health with storage key performance indicators (KPIs)

39 Must have storage management software that understands and manages the impact that storage has on applications. With this improved insight, it should optimize storage resources to control the cost of rapid data growth.

40 Must support storage management software for capacity utilization across multivendor storage environments.

41 Minimum of 8 host ports up to max of 112 host port (4Gb/s FC & 8Gb/s FC)

42 **3 years Full Warranty**

43 **3 years 24x7 Mission Critical onsite support warranty** upgrade for Hardware and OS with availability of Toll free number directly with original manufacturer for raising service tickets.

44 Availability of Service Delivery Manager from manufacturer.

45 Must support automatic failover (SAN-SAN) for Microsoft clustered clients as well as none Microsoft clustered clients (i.e. HPUnix)

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73. Backup Library

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product.
2. Must be Enterprise tape library.
3. **TBS:** Minimum Drives capacity with the base configuration: **2 Drives**
4. **TBS:** Minimum Storage Slots Available with the base configuration: **36** licensed and activated slots (including Import/Export (I/E) station)
5. Supported Drives Types: LTO-3 SCSI and LTO-3 Native FC
   LTO-4 SAS, LTO-4 Native FC and T10000.
6. Redundant Power Supplies
7. LTO4 800/1.6 TB Cartridges or T10000 Cartridges and 2 X LTO Cleaning or T10000 cleaning cartridges
8. FC interface Native Drive Interface
9. Library Management: Operator panel touch screen; support Web client , SNMP protocol , and SMI-S protocol
10. Support for large-scale data backup and archive environments.
11. High-availability and redundant architecture to support to manage 24x7 operations.
12. The Tape Library should support modular architecture to expand on-demand beyond the base configuration to reach up to more number of Drives and Cartridges
13. Support of different tape technologies in the same library.
14. Must support high security feature.
15. **3 years Full Warranty**
16. **3 years 24x7 Mission Critical onsite support warranty** upgrade for Hardware and Software with availability of Toll free number directly with original manufacturer for raising service tickets.
17. Support for multi-streaming and multi-plexing of backup traffic.
18. Availability of Service Delivery Manager from manufacturer.

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74.   Backup Tape Drive:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Minimum Support for LTO4 and T10000 Tape Drive
3. **TBS:** **20** Media Cartridges must be included at delivery.
4. **TBS:** IDE / EIDE Interface (**USB Interface if it is an External device**)
5. 220 V **Power adapter if needed.**
6. Support for Encryption and Compression.
7. Support for high volume backup and archive.
8. **TBS: External or Internal.**
9. Support long term retention.
10. **3 years full Warranty.**

75.   DVD-Writer:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. 16X Read Speed for the DVD Media
3. 16X Write Speed for the DVD Media
4. 4X Read Speed for the DVD Media
5. 52X Read Speed for the CD Media
6. 52X Write Speed for the CD Media
7. 24X Rewrite Speed for the CD Media
8. Reads and Writes to +RW and –RW types
9. IDE / EIDE Interface (USB Interface if it is an External device)
10. 125 ms Access Time
11. 8MB Cache Size
12. Support Windows2000, 98, ME, NT, XP ,Vista, Windows 7.
13. 220 V **Power adapter if needed.**
14. **TBS: External or Internal.**
15. **3 years full Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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Display Devices

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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76.　　Flat Panel Display - Monitors :

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. Must be a brand name product.
2. **TBS:** Minimum 20" LED Backlights (20 -inch viewable image size) Or bigger.
3. Widescreen Flat Panel Display.
4. **TBS:** Minimum HD 1600x900 resolution or higher at 60 Hz.
5. Security lock slot
6. **TBS:** Connectivity At least the following :
    - Digital Visual Interface connectors (DVI-D).
    - 1 Video Graphics Array (VGA)
    - DC power connector
7. Height-adjustable stand and built in cable-management
8. **3 years Base Warranty.**

77.　　Flat Panel Display - TV's:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product.**
2. Screen Size (").
3. Smart TV.
4. 4K ULTRA HD LED Panel display.
5. 3840(w)X2160(H) resolution.
6. 16:9 Aspect Ratio.
7. Support 3D.
8. Integrated wireless LAN.
9. Smart TV Apps.
10. Support (keyboard/Mouse) Bluetooth.
11. Multiple Language Display.
12. Connectivity At least the following :
    1. 3 Side HDMI™ Input .
    2. USB 3.0 x 1.
    3. USB 2.0 x 2.
    4. SCART Input
    5. LAN port.
    6. Headphone Output
13. **3 years Base Warranty.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)　　　　**على المورد الالتزام بالتعليمات في الصفحات من   ٦ إلى ١٨**

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78. Portable Data Show Projector:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. True XGA 768 x 1024 Resolution
3. **2500** ANSI Lumens.
4. **LAMP:** 220W UHP.
5. Power Zoom & Focus.
6. Built in WIFI.
7. Built in USB Interface.
8. Built in card reader.
9. TFT LCD 16 million colors.
10. Multiple inputs : Data(at least one input) & Video(at least two inputs).
11. PC Compatible Remote Control.
12. 1.2m min and max 15m distances.
13. Unique JVD D-ILA Technology
14. Excellent Data & Video Picture
15. Extended PC to projector cable (at least 15M).
16. Portable. Must have small footprint, low weight no more than **5 LBS**.
17. Must include carrying case whit the same brand logo.
18. **TBS:** Ceiling Mountable kit, with all necessary cables and parts for the installation.
19. **3 years full Warranty including the lamp.**

79. Ceiling Data Show Projector:

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. True SXGA 768 x 1024 Resolution
3. **3500** ANSI Lumens.
4. **LAMP:** 300W UHP.
5. Power Zoom & Focus.
6. TFT LCD 16 million colors.
7. Multiple inputs : Data(at least two inputs) & Video(at least two inputs).
8. PC Compatible Remote Control
9. Unique JVD D-ILA Technology
10. Excellent Data & Video Picture
11. Extended PC to projector cable (at least 15M).
12. Ceiling Mountable kit, with all necessary cables and parts for the installation.
13. **3 years full Warranty including the lamp.**

TBS: To **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

Power devices

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨ **Vendors must comply with instructions (page 6 to 18)**

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80. Voltage Stabilizer

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. **TBS: Minimum of Output power of 2000 Watts.**
3. Wide input voltage range: 86 Volts to 270 Volts.
4. Frequency range from 45Hz to 72Hz.
5. 110v and 220v selectable Input voltage (**Auto preferred**).
6. **Selectable 4 Output 2*110V and 2*220V**
7. Output within maximum + or - 4 %
8. Fast Response Time less than 0.1 Second.
9. Accepts United States standard plugs (input and output).
10. Must be certified by CE mark or UL.
11. Must be use a latest technology
12. **3 years full Warranty.**

81. Uninterrupted Power Supply (UPS)

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. **TBS:** Minimum of 1000 VA.
3. Surge Protection.
4. RJ-45 line protection.
5. Overload Alarm.
6. 110-220 Auto switching Power Supply.
7. **TBS:** Minimum of **15 minutes** of electrical support for any of the servers in this document.
8. Output Voltage 110v and 220v.
9. Can automatically communicate with supported device (e.g. for "server shutdown").
10. Drivers for Windows NT/XP/2000/2003/Vista/Windows 7.
11. Must include all necessary cabling, Drivers, and documentation.
12. Supports network interface card to be addressable and manageable.
13. Must be use a latest technology
14. **3 years full Warranty.**

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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82.   Duplex Power Socket

Must meet NIC General HW requirements plus the following Minimum of requirements:

15. United Kingdom, British 13 AMPERE-250 VOLT BS1363 A, BS1363 (UK1-13R).
16. Duplex outlet.
17. Shuttered contacts, 2 POLE- 3 wire grounding.
18. White color .
19. Flush mount use wall box # 72355 OR # 72355-F.
20. Surface mount use wall box # 72365 OR # 72440.
21. British standard 2 gang switched socket with neon 13A
    Standard(s): CEE 7/17
    Rating: 13 Amp 250V~
    Socket type:
    Contact Gap: 3.0mm minimum
    Terminal Capacity: 3 x 2.5mm2 3 x 4mm2 2 x 6mm2
22. Size: 1466mm x 86mm
    Fixing Centre's: 129mm
    Minimum mounting box depth: 25mm
23. Brief Description of Products:
    A sleek and slim design with softly rounded corners will compliment any interior.
24. Fixed integrated plastic gasket to protect metal edges from moisture.
25. Stylish modern profile
26. Available in 4 metal finishes.
27. Color matched fixing screws.
28. backed out captive screws for easy installation.
29. Standard: BS1363A, SASO 2203.
30. **10 years fully Warranty.**

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Office Equipment

على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

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83. Cross-Cut Personal Paper Shredder

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. Processing speed up to 15 feet per minute.
3. Stop-reverse switch.
4. Manual forward automatically stops on jams.
5. Cross-cuts up to 5 sheets (including staples).
6. Up to 240mm paper width.
7. **TBS:**120/220V (50/60) Hz power source.
8. **3 years full Warranty.**

84. Departmental Copy Machine

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. **TBS:**A4, A3 Paper size.
3. Zoom Enlargement and Reduction from 50% to 200%.
4. 20-25 copies per minute.
5. Handles both document originals and copies
6. Two 250-sheet paper trays.
7. Auto feeder try with at least 150 sheet capacity
8. 10 Bin sorter with stapling (50 sheet /Bin)
9. Copy from both sides of the sheet
10. **TBS:**120/220V (50/60) Hz power source.
11. **3 years full Warranty.**

85. Personal Copy Machine

Must meet NIC General HW requirements plus the following Minimum of requirements:

1. **Must be a brand name product**
2. A4 Paper size.
3. Zoom Enlargement and Reduction from 70% to 140%.
4. 10-15 copies per minute.
5. Handles both document originals and copies
6. One 200-sheet paper tray.
7. 220 V (50/60) Hz power source.

3 years full Warranty.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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Data Security Hardware and Software

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   **على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨**

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86. FIREWALL SYSTEM SPECIFICATIONS

Must meet NIC General HW requirements plus the following basic capabilities:

1. Must be a brand name product
2. The firewall must be certified by Federal Information Process System (FIPS)
3. Support a "deny all services except those specifically permitted" policy
4. Not to impose a certain security policy, but, be flexible to adapt NIC needs.
5. Contain advanced authentication measures or hook into some advanced authentication measures if needed
6. Employ techniques to permit or deny services to specified host systems & application as needed
7. Log access to and through the firewall.
8. On box logging should also be supported for troubleshooting and analysis
9. Use a flexible user friendly IP-filtering language that is easy to configure and can filter on a wide variety of attributes, including source and destination IP address, protocol type, source and destination TCP/UDP port and inbound and outbound interfaces, application protocol type.
10. Use a flexible user friendly Application filtering language that is easy to configure and can filter on a wide variety of attributes, including username/user –group as source and Application port as destination.
11. Additionally, the firewall should have Intrusion Detection Capabilities to log suspicious activities at the edge and immediately behind the edge
12. The firewall should support multi-CVP (Content Vectoring Protocol) vendors. CVP must support contents (e.g. Email) and URLs filtering.
13. Network firewall (appliance) has to be pure hardware device; the firewall is not implemented with normal software that uses traditional OS (e.g. UNIX or MS Windows server).
14. Support for Secure RTP and TLS Proxy.
15. Support for IPsec and SSL VPN (SSL VPN up to 10,000 natively)
16. Firewall vendor should provide patches and fixes for free periodically (every month, at least) or when vulnerabilities have been discovered. Patches and fixes installation must NOT affect the current firewall configuration by any means.
17. Ideally Firewall support application vicinity and control of it.
18. Ideally Firewall is to be present in category of Next Generation firewall although it is not mandatory
19. Firewall should support creation of policies based on username and applications not only ip addresses and port.
20. Firewall should support integration with LDAP, Radius, Active Directory agent, LDAP, and Kerberos
21. URL Filtering should be supported based on categories and IP reputation of the site. Custom URL filtering should also support.
22. Clear Roadmap for next 5 years must be provided by vendor.
23. Throughput for firewall different models should be the range of 200Mbps to 10Gbps
24. 24X7X365 support must be available for Saudi Arabia
25. Should contain fixes interfaces and also support modular interfaces such as 1gb copper, Fiber (SX,LC), 10gb Support**, Management interfaces should be separate. Lower End models does not need to support modular interfaces

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

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Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

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26. Enough RAM and CPU should be supported so if all features of Firewall are enabled memory and CPU should not become a problem.
27. Firewall must be Stateful in nature.
28. Support for following features are required but not limited to it.
    o Failover Active/Passive, Active/Active & Full Mesh.
    o IETF IPSEC Support.
    o DES,3DES, MD5, PKI (Public Key) Digital Certificate
    o For Authentication RADIUS,TACACS, TACACS+
    o On Box an Off box reporting.
    o Packet Capture & Analysis of it.
    o Static Nat, Dynamic NAT, PAT, NO-NAT.
    o PPTP, LT2P.
    o Limited functionality to prevent DOS and DDOS attacks.
    o Antivirus Inspection, Antispyware, Antispam and Day Zero Attack should be supported.
    o Support for Site to Site IPSEC VPN, Remote Access IPSEC VPN and Client less/Client VPN.
    o Multicast
    o ActiveX Filtering,
    o Bridging,
    o IPV6 Support
    o Static IP Routing, OSPF, BGP, IS-IS,RIP, Source Based & Destination Based routing.
    o SNMP (Version 1, 2 and Version 3), SNMP Traps
    o Logging, SYN attack protection, VLAN.
    o Aggregation of Ports
    o QOS and other traffic techniques so critical traffic can be priorities.
    o Support for Virtual Firewall within same hardware.
    o Transparent Firewall (L2) with application inspection support.
    o Minimum Concurrent session 100,000.

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على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨   **Vendors must comply with instructions (page 6 to 18)**

المواصفات الفنية القياسية للأجهزة   ص ١٢٢ من ١٢٨   النسخة: 8_2017

87. Intrusion Prevention System

Must meet NIC General HW requirements plus the following basic capabilities:

1. Should support Advance Malware Protection Network wide.
2. Provide comprehensive protection and threat identification.
3. Inspection and analysis of traffic in Layers 2 through 7
4. Identify malicious traffic into IPV4 and IPv6.
5. Identify vulnerability-based attacks through the use of multi-packet inspection across all protocols.
6. Provide anomaly identification for attacks that may cover multiple sessions and connections.
7. Identify Layer 2 Address Resolution Protocol (ARP) attacks and man-in-the-middle attacks.
8. Identifies attacks based on observed deviations in the normal RFC behavior of a protocol or service.
9. Provides deep analysis and control of a broad set of applications, including:
    a. Peer-to-peer
    b. Instant messaging
    c. Tunneled applications over Port 80
    d. Allows the user to make policy decisions about various traffic types and Multipurpose Internet Mail Extensions (MIME) types to help ensure that malicious traffic is disallowed from traversing the network.
10. Anti-IPS evasion techniques:
    a. Traffic normalization
    b. IP defragmentation
    c. TCP stream reassembly
    d. De-obfuscation
11. Support Stateful Signatures, Protocol Anomaly Detection, Backdoor Detection, Traffic Anomaly Detection, IP Spoof Detection and attacks that cannot be characterized (buffer overflows, DNS cache poisoning, future sendmail exploits)
12. Provide the flexibility to create new policies or modify existing policies to meet user unique security objectives.
13. Pre-defined and customized reports.
14. Easy to deploy and meet the performance requirements.
15. Provide centralized management for installations, ongoing maintenance and updates.
16. Advanced Threat Protection
17. Real-time Contextual Awareness
18. Intelligent Security Automation
19. Continuously monitor user/Administrator actions on systems and in applications, and be able to correctly handle in real time the quantity of information.
20. Accuracy; the rates of false negative (missed events) and false positive (benign activity that is identified as malignant event).
21. Constantly assess and actively maintain integrity of systems, applications, and data.
22. IPS solution can be customized to implement NIC corporate security policy.
23. Create new security monitoring policies and immediately apply them (remotely); IPS supports remote management and capable of effectively administering a large number of agents or sensors.

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24. Information being passed between the network management system or IPS manager and agents or sensors, and between the agents and network servers, is not lost, unduly delayed, or corrupted due to network and system failures.
25. Detect unauthorized activity, generate alarms, and execute programmed actions.
26. Collect and securely preserve audit data for archival and post-event analysis.
27. Must be suited for monitoring traffic of a SPAN (Switched Port Analyzer) port.
28. Must provide a distributed capability.
29. Must contain a comprehensive initial signature database as well as frequent (e.g. immediate upon identification) attack definition update- a set of comprehensive attack signatures, etc-, in a simple way (e.g. automatic, electronically secure download from vendor's site). These updates must NOT affect network configuration, security, or performance.
30. Security detection incidents (i.e. events) can be analyzed on the local system
31. Must have ability to record the raw session content in real time (for later playback).
32. IPS provide the means for the user to effectively manage security events, this includes but not limited to, event prioritization, report merging and data visualization, event trace and reply; ability to reconstruct any event in full, and 24x7 vendor hotline.
33. 3 years full warranty with IPS Signatures update.
34. All monitoring/sensing interfaces must support Internal Physical Bypass feature.
35. Management interface(s) must be separate from the sensing/monitoring interfaces.
36. Monitoring/sensing Interfaces should support 1gbps copper, fiber (single mode, multimode), 10gb interfaces.
37. Higher end devices (throughput 2gbps) and above should support fixed as well as modular interfaces.
38. Throughput should be in the range from 100Mbps to 30Gbps (based on different models)
39. Latency for the traffic should not be more than 200 microsecond.
40. High availability within box such as dual power supplies, dual cooling fans, RAID level HDD should be supported.
41. Internal Bypass in case of failure of box should be supported, Failsafe and Fail open.
42. NIC Should be able to export logs from Sensor or Manager of Sensor for compliance requirements.
43. Ideally IPS should be present in NGIPS category.

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88.   NAC SYSTEM SPECIFICATIONS:

This solution offers a more holistic approach to network access security and provides:

1. Should support accurate identification of every user and device.
2. Should support Easy onboarding and provisioning of all devices.
3. Should support Centralized, context-aware policy management to control user access - whoever, wherever, and from whatever device.
4. Should support deeper contextual data about connected users and devices to more rapidly identify, mitigate, and remediate threats.
5. Should Powerful device classification.
6. Should Extensive policy enforcement.
7. Should Streamlined guest experiences.
8. Should Self-service device onboarding.
9. Should support Security compliance.
10. Should support Automated device-compliance checks.
11. Should support Dependable anywhere access.
12. Should support Operational efficiency.
13. Should support Embedded enforcement.
14. Should support Extension of policy into the data center.
15. Should support Multivendor-infrastructure support.
16. Should support Grid context sharing.
17. Should support Broad, integrated partner ecosystem
18. Should support both Virtual as well as Physical hardware on which solution should be deployed.
19. Should support Business-policy enforcement
20. Should support Guest lifecycle management
21. Should support Streamlined on- and off-premises device onboarding
22. Should support AAA protocols
23. Should support Internal certificate authority
24. Should support Device profiling
25. Should support Device profile feed service
26. Should support Endpoint posture
27. Should support Ecosystem Integration: EMM
28. Should support Ecosystem Integration: SIEM and TD
29. Should support Ecosystem Integration: Web security
30. Should support Ecosystem Integration: Control and SCADA operational and security policy integration
31. Should support Ecosystem Integration: Simplified network troubleshooting and forensics
32. Should support Ecosystem Integration: Endpoint vulnerability remediation
33. Should support Ecosystem Integration: Risk-based, adaptive authentication and single sign-on
34. Should support Extensive multiforest Active Directory support.
35. Should support Endpoint protection service.
36. Should support Should support Centralized management.
37. Should support Should Monitoring and troubleshooting.

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Hardware and Software Products Supported by NIC

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- Vendor must submit a formal letter, to NIC from the original manufacturer / company, that shows that the manufacturer / company will support the hardware / machines, that will be delivered as part of the vendor's contract, for the whole period of the Contract.

- Where communication hardware is being proposed, the vendor must procure & deliver the equipment through "Gold Partner" agent / representative".

- **The company/ vendor is responsible for all integration related to their devices on NIC systems. This is the only way to prove the accuracy and reliability of that device. NIC will not approve any device otherwise.**

- If any company/ vendor want to add product to this list, they can raise a request by emailing (**SPECS@NIC.GOV.SA**).

Hardware:

الأجهزة	الشركات			
PCs	Dell	HP	Lenovo	
Servers	IBM	HPE	Cisco	Dell
Laptops	Dell	HP	Lenovo	
SAN Storage	IBM	HPE	Dell-EMC	
Flat Panel Display – TV's	Panasonic	Sony	LG	Samsung
Flat Panel Display –Monitors	Dell	HP	Lenovo	Samsung
Routers	Cisco	Juniper	HP	Extreme
Switches	Cisco	Juniper	HP	Extreme
Laser Printer	Epson	HP	Canon	
Printer Ink Jet	Epson	HP	Canon	
Dot Matrix Printer	Epson	HP	Canon	SEDCO
Scanner	Kodak	Fujitsu	Epson	Canon
Bar Code Reader	Honeywell	Motorola		
Fingerprint Live-Scan	CrossMatch	Identix L1	3M	
Voltage Stabilizer	APC	MEGA VOLT	SOLLATEK	
Uninterrupted Power Supply (UPS)	APC	MGE	Libert	Simens
FIREWALL SYSTEM devices	Cisco	Juniper	Palo Alto	
Intrusion Prevention Systems and devices	Cisco	Juniper		
load balancer	F5 Networks	Citrix	Cisco	

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Software:

البرامج	المنتج
أنظمة التشغيل	MS Windows
البرامج المكتبية	Microsoft Office, Internet Explorer V. 8
قواعد البيانات	ORACLE, SQL, DB2,VDB
برامج الأرشفة	FileNET
نظام معلومات جغرافية	ESRI
برامج المحاكاة	IBM PCOM 5.7 or higher
Virtualization	VMware
مكافح الفيروسات Anti Virueses	CA Total Defense, Symantec Endpoint Protection, Microsoft Forefront

Communications Protocols at NIC: TCP/IP

TBS: **T**o **B**e **S**pecified in RFP. If not specified, bidder must ascertain selection or be liable for highest cost option at bid price.

TBS: تعني يجب تحديدها من قبل كاتب الوثيقة. فإن لم يتم تحديدها فعلى المقاول الاستفسار عنها وإلا سيكون مسئولاً عن توريد أفضل الخيارات بالسعر المقدم في العرض

Vendors must comply with instructions (page 6 to 18)   على المورد الالتزام بالتعليمات في الصفحات من ٦ إلى ١٨

المواصفات الفنية القياسية للأجهزة   ص ١٢٨ من ١٢٨   النسخة: 8_2017